NEC ExpressCluster SRE

Version 3.1

Installation and Configuration Guide

(FT Linux edition)

NEC ExpressCluster SRE 3.1 Installation and Configuration Guide (FT Linux edition)

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About this guide

NEC ExpressCluster SRE 3.1 is an integrated software solution designed for monitoring and automatically restarting processes and daemons on a single server.

Using this guide

This document includes step-by-step instructions to help you install NEC ExpressCluster SRE 3.1 and configure it to monitor processes and daemons on the NEC-FT Linux Operating System.

The following topics are covered:

- **Chapter 1: Server Agent Installation** explains the pre-requisites and steps to install NEC ExpressCluster SRE 3.1
- **Chapter 2: Server Agent Configuration** explains the software configuration required post installation of NEC ExpressCluster SRE 3.1
- **Chapter 3: Management Client Installation** explains the installation of the Management Client used to manage the server
- **Chapter 4: Basic Operations** explains the basic operation and usage of the Management Client user interface
- **Chapter 5: Management Configuration Client Installation** explains the steps required to install a client tool used for configuring scripts to monitor processes.
- **Chapter 6: Management Client Security Configuration** explains the steps required to restrict client computers using the Management Client to view and operate the server.
- **Chapter 7: Customization for Sendmail** walks you through the steps to customize the monitoring of "sendmail" using pre-defined scripts
- **Chapter 8: General Customization** explains the steps required to configure scripts using the Management Configuration Client Tool to monitor processes
- **Appendix A: Changing the Computer Name** explains the steps that need to be executed before and after changing the computer name of the server.
- **Appendix B: Assigning an IP address** explains the steps to team and assign an IP address to the virtual network interface card on the server.
- **Appendix C: Installing JRE** guides you through the installation instructions for installing the Java Runtime Environment.
- **Appendix D: Modifying JRE** guides you through the instructions for modifying an existing installation of the Java Runtime Environment on the Windows Platform
- **Appendix E: Starting the ftp daemon** explains the steps to start up the ftp daemon on the FT-Linux server.

For installation, configuration and customization to monitor "sendmail" please read the following chapters in sequence:

- Installation (Chapter 1)

- Configuration (Chapter 2)
- Management (Chapter 3, Chapter 4, Chapter 5 and Chapter 6)
- Customization (Chapter 7)

For installation, configuration and customization to monitor other general processes please read the following chapters in sequence:

- Installation (Chapter 1)
- Configuration (Chapter 2)
- Management (Chapter 3, Chapter 4, Chapter 5 and Chapter 6)
- Customization (Chapter 8)

Where to go for more information

Please refer to additional documentation under the “documentation” directory on the NEC ExpressCluster SRE 3.1 distribution CD or archive file. This directory contains a Command Reference (CommandReference.pdf) of all the commands used by NEC ExpressCluster SRE 3.1.

Chapter 1: Server Agent Installation

Please note that only Server Agent Installation (this chapter) should be performed at the factory since configuration and customization are dependent on customer site-specific environment.

Prerequisites

Hardware

Server Model

The NEC Express5800/320Lb server

Minimum Hard disk and Memory Capacity

Hard Disk: 77MB, Memory: 512 MB

Software

Operating System

NEC FT Linux Version 2.1.0.1-001

Installation Steps

Step 1

Insert the installation CD into the CD ROM drive

Step 2

Login as “root” with the password set for the “root” user. (If the password for “root” has not been changed, the default is “9hnAdx6Nz”)

Step 3

Type in the following to mount the CD as read only:

```
mount –o ro /dev/cdrom /mnt
```

Step 4

Type in the following:

```
rpm –i /mnt/server/ecsre-svr-3.1-2.i386.rpm
```

Step 5

You could verify that the rpm is installed successfully by the following command:

```
rpm –q ecsre-svr-3.1-2
```

The output will be:

```
ecsre-svr-3.1-2
```

Chapter 2: Server Agent Configuration

This chapter describes the one-time initial configuration procedure for NEC ExpressCluster SRE 3.1 in the final deployment environment.

Computer Name Configuration

If the computer name (as shown by running the “hostname” command) is changed from the factory setting (“localhost”) then you MUST perform the following steps:

Step 1
Open the file /opt/nec/clusterpro/etc/clp.conf using the “vi” editor

Step 2:
Look for the following line and change the computer name to the new name (say “XXX”). Please retain the quotations before and after the computer name.

```
....
....
<server name="XXX">
....
....
```

Step 3:
Look for the following line and change the computer name to the new name (say “XXX”). Please retain the quotations before and after the computer name.

```
....
....
<policy name="XXX">
....
....
```

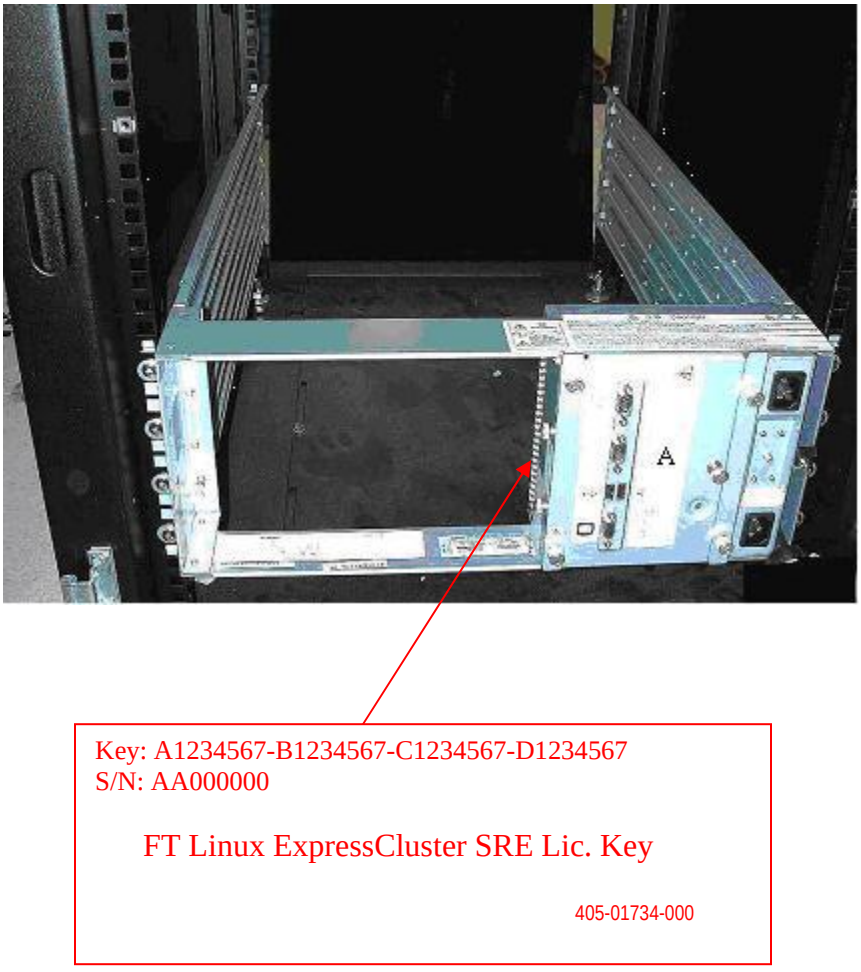
Step 4:
Save the file and quit the “vi” editor.

Registering a License

Note:
The license key “A1234567- B1234567- C1234567- D1234567” and the serial number “AA000000” used in the steps below ***is a sample****. Please* ***do not use*** *this key and number.*

Step 1
Login as “root” with the password set for the “root” user. (If the password for “root” has not been changed, the default is “9hnAdx6Nz”)

Step 2
Locate the FT Linux ExpressCluster SRE License Key at the back of the server along the edge as indicated in following figure:



Step 3
Type in the following command:

```
clplcnsc -I -P SE30
```

Step 4
Type in 1 for the product division at the prompt below:

Selection of product division
1. Product
2. Trial
Select product division [1 or 2] ... **1**

Step 5
Enter the number of license as 1:

Enter the number of license [1 to 99 (default:2)] ... **1**

Step 6
Enter the serial number similar to the license as in the sample below:

Enter serial number [Ex. XX000000] **AA000000**

Step 7
Enter the license key similar to the license as in the sample below:

Enter license key [Ex. XXXXXXXX- XXXXXXXX- XXXXXXXX- XXXXXXXX]
] ... **A1234567- B1234567- C1234567- D1234567**

Step 8
You will see the following output:

```
command was success.
```

Step 9
Confirm the registered license with the command below:

```
clplcnsc –L –P SE30
```

The output will be similar to:

```
< Cluster CPU License SE 3.0 <PRODUCT> >
Seq... 1
Key..... A1234567-B1234567-C1234567-D1234567
The number of license... 1
Status... valid
```

Starting ExpressCluster SRE

Step 1:
With the login as root, type in the following at the command prompt:

```
/opt/nec/clusterpro/management/sre-register
```

This command registers the daemons of ExpressCluster SRE with “chkconfig” so that the daemons startup automatically on all subsequent system reboots.

Step 2:
Run the following:

```
/opt/nec/clusterpro/management/sre-start
```

This command starts the ExpressCluster SRE daemons.

Step 3:
Verify that the status of the cluster daemon using the following command:

```
clpstat -s
```

The output will be similar to:

```
======================  CLUSTER STATUS  ============================
  Cluster : SRE-VCC
  <server>
   *localhost .......: Online           Standalone Server
      lanhb1         : Normal           LAN Heartbeat
  <group>
    SRE-GRP .........: Online           Resource Group
      current        : localhost
  <monitor>
=================================================================
```

Chapter 3: Management Client Installation

Overview

The Management Client is a Java applet that allows you to monitor the status of the cluster, start and stop the groups and shutdown and reboot the server.

Server Prerequisites

Network

On the FT Server, either the 100 base or the 1000 base pair of Network Interface Cards need to be teamed to form one Virtual Interface. An IP address needs to be assigned to this Virtual Interface. Please refer to Appendix B: Assigning an IP address for instructions on teaming and assigning an IP address.

Standalone Computer Prerequisites

Hardware

A standalone computer or laptop with one Network Interface Card and the following minimum requirements:
Disk: 2MB, Memory: 40MB

Network

A static IP address needs to be assigned to the standalone computer or laptop. Please ensure network connectivity to the FT Server while assigning this IP address ("ping" should be successful).

Software

Operating System:

Any one of the following combinations:

1. Windows 2000 Professional with Internet Explorer 6 (Service Pack 1)
2. Windows XP Professional with Internet Explorer 6 (Service Pack 1) or Netscape 7.1
3. Windows 2000 Advanced Server with Internet Explorer 6 (Service Pack 1)
4. Turbo Linux 8 Enterprise Server with Mozilla 1.0.1 or Netscape 7.1
5. Red Hat Linux 9.0 with Mozilla 1.2
6. Red Hat Enterprise Linux ES 3.0 with Mozilla 1.4

Java Runtime Environment:

Java 2 Runtime Environment Standard Edition Version 1.4.1_02 or later.

If you do not have JRE installed, please refer to Appendix C: Installing JRE for installation instructions.

If you already have JRE installed, please refer to Appendix D: Modifying JRE for modifying your existing installation on Windows. The Management Configuration Client (explained in Chapter 5) requires the *Support for Additional Languages* for JRE, as it uses shift-JIS character encoding on the Windows platform. The Management Client and the Management Configuration Client can be installed on the same machine. Hence it is required to modify JRE if it is already installed.

Chapter 4: Basic Operations

The following sections describe how to use the management client to perform basic ExpressCluster SRE monitoring and control operations.

Please note that screenshots in the example below have one resource "*ping*" (ping 127.0.0.1) and a monitoring resource "*ping monitor*" which monitors "*ping*". Also, the host name of the server is SRE-SRV and the group name is SRE-GRP

Prerequisites

1. The personal computer or laptop machine where the Management Client is installed should be network reachable to the FT-Linux Server.

2. The ExpressCluster SRE daemon on the FT-Linux Server should be running. You could verify this using the following command:

   ```
   clpstat –s
   ```

   The output will be similar to:

   ```
   ==================  CLUSTER STATUS  ============================
   Cluster : SRE-VCC
   <server>
      *SRE-SRV .........: Online           Standalone Server
         lanhb1         : Normal           LAN Heartbeat
   <group>
         SRE-GRP .........: Online         Resource Group
         current         : SRE-SRV
         ping            : Online           ping resource
   <monitor>
       ping monitor      : Normal           monitors ping

   ================================================================
   ```

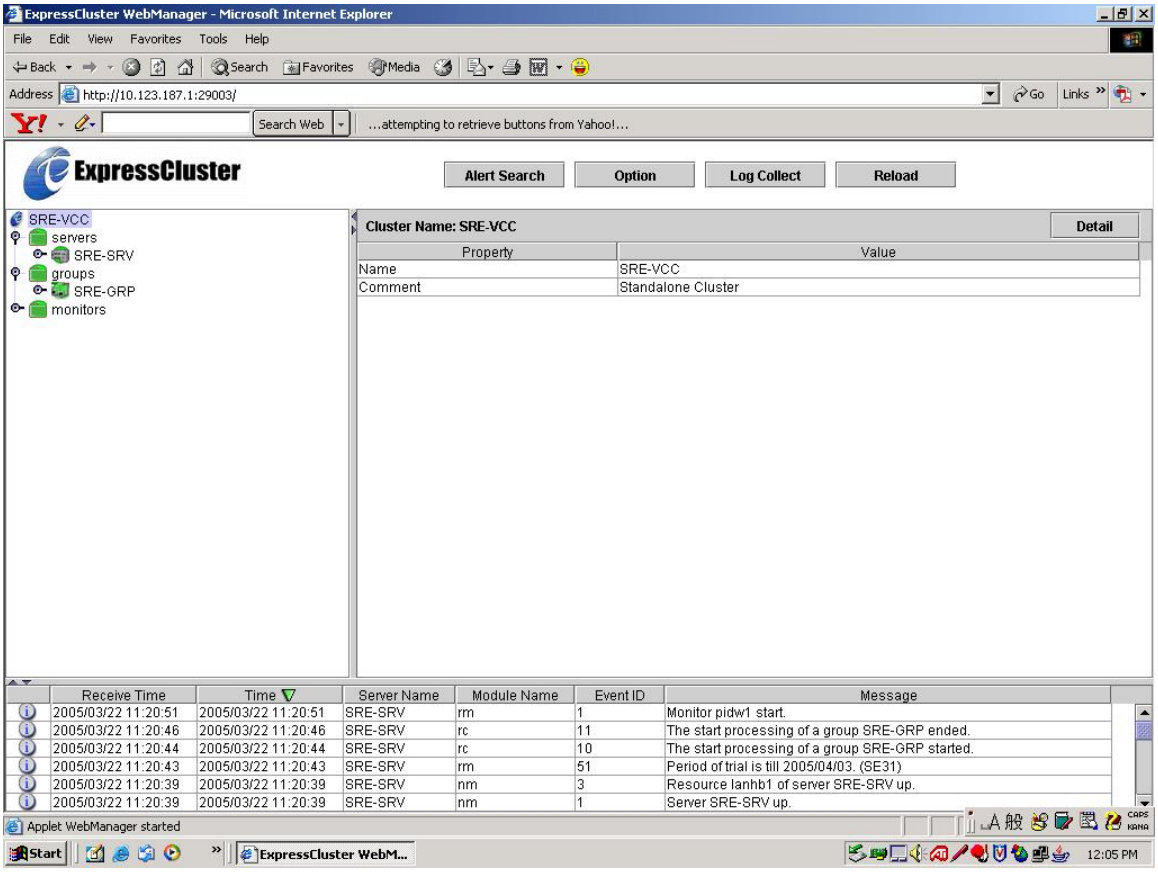
Starting the Management Client

Step1
Open Internet Explorer and type in the following:

http://<IP Address of the server>:29003

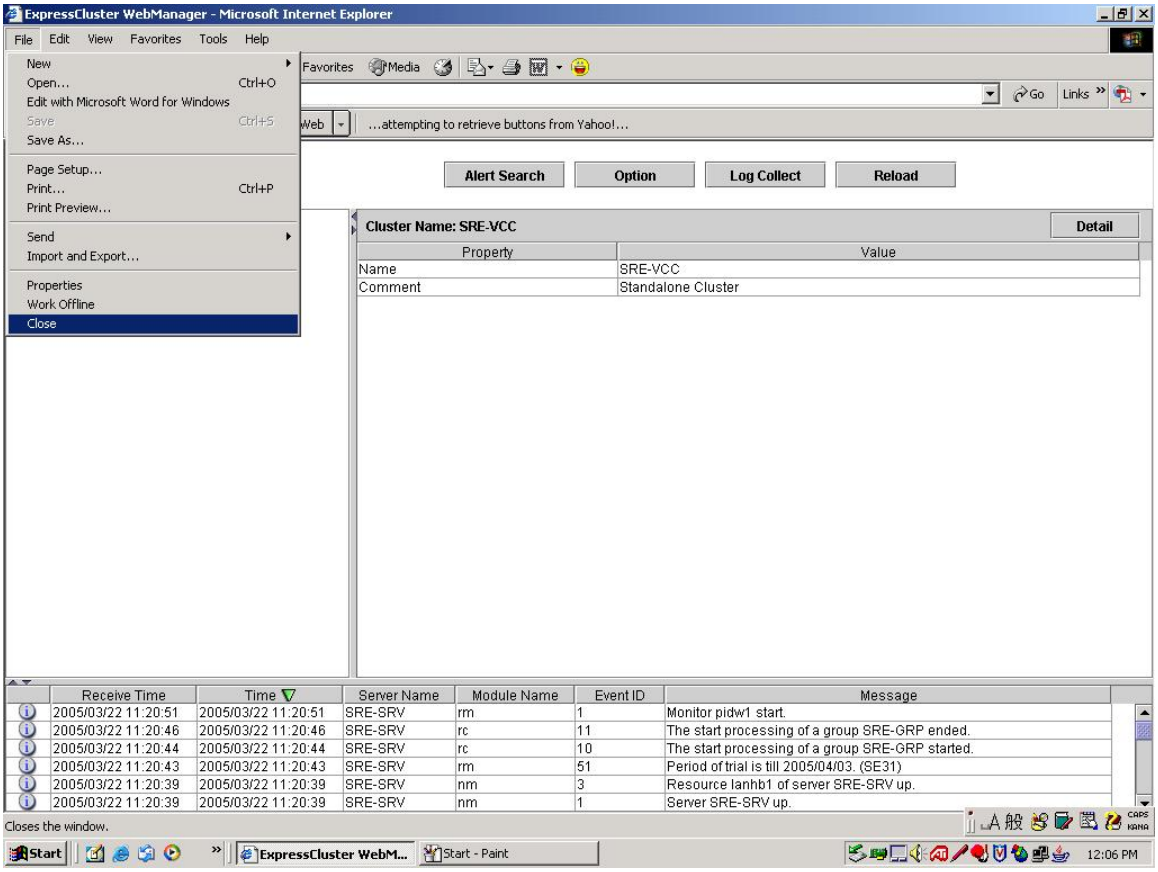
Example: http://10.123.187.1:29003

This will open up the user interface similar to the one below:



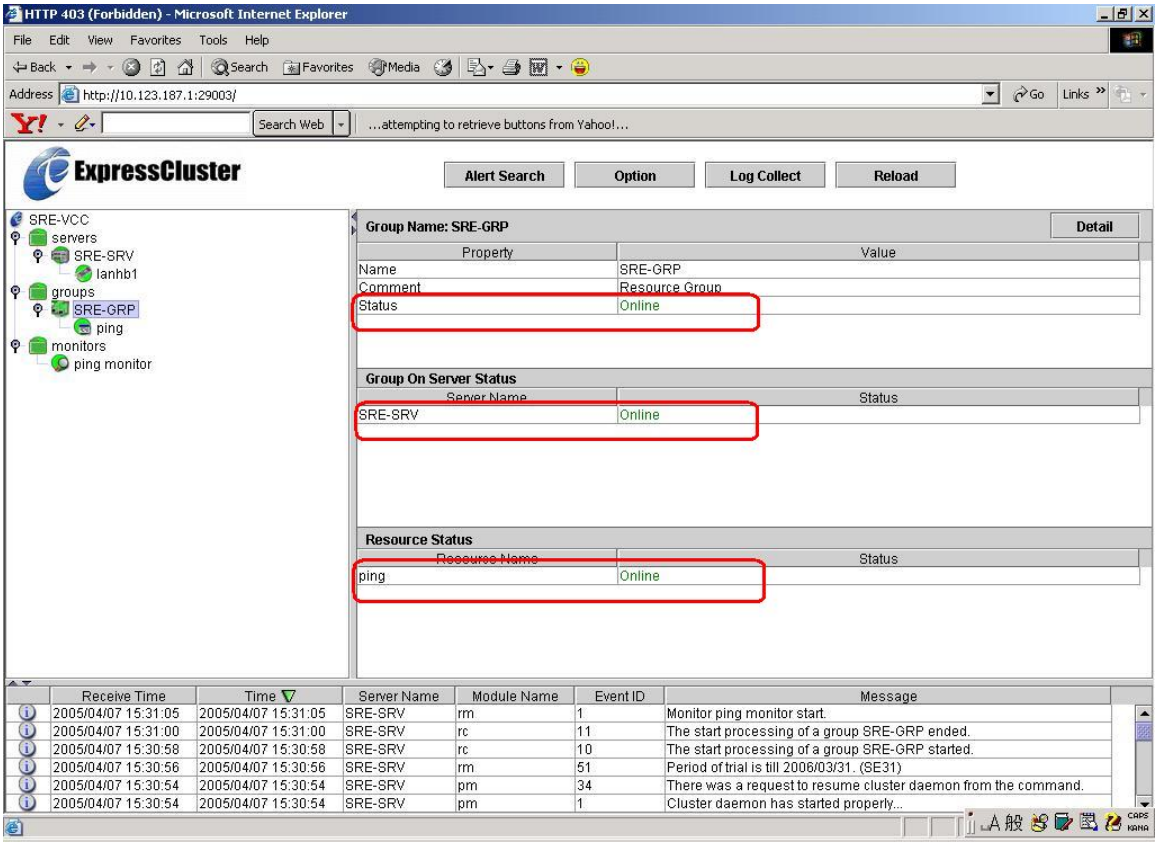
Exiting the Management Client

Step 1
Click *File -> Close* in Internet Explorer Browser as below:


ExpressCluster WebManager - Microsoft Internet Explorer
File Edit View Favorites Tools Help
New
Open... Ctrl+O
Edit with Microsoft Word for Windows
Save Ctrl+S
Save As...
Page Setup...
Print... Ctrl+P
Print Preview...
Send
Import and Export...
Properties
Work Offline
Close
Favorites Media
Go Links
Web ...attempting to retrieve buttons from Yahoo!...
Alert Search
Option
Log Collect
Reload
Cluster Name: SRE-VCC
Detail
Property Value
Name SRE-VCC
Comment Standalone Cluster
Receive Time Time Server Name Module Name Event ID Message
2005/03/22 11:20:51 2005/03/22 11:20:51 SRE-SRV rm 1 Monitor pidw1 start.
2005/03/22 11:20:46 2005/03/22 11:20:46 SRE-SRV rc 11 The start processing of a group SRE-GRP ended.
2005/03/22 11:20:44 2005/03/22 11:20:44 SRE-SRV rc 10 The start processing of a group SRE-GRP started.
2005/03/22 11:20:43 2005/03/22 11:20:43 SRE-SRV rm 51 Period of trial is till 2005/04/03. (SE31)
2005/03/22 11:20:39 2005/03/22 11:20:39 SRE-SRV nm 3 Resource lanhb1 of server SRE-SRV up.
2005/03/22 11:20:39 2005/03/22 11:20:39 SRE-SRV nm 1 Server SRE-SRV up.
Closes the window.
Start
ExpressCluster WebM...
Start - Paint
12:06 PM

Viewing Group Status

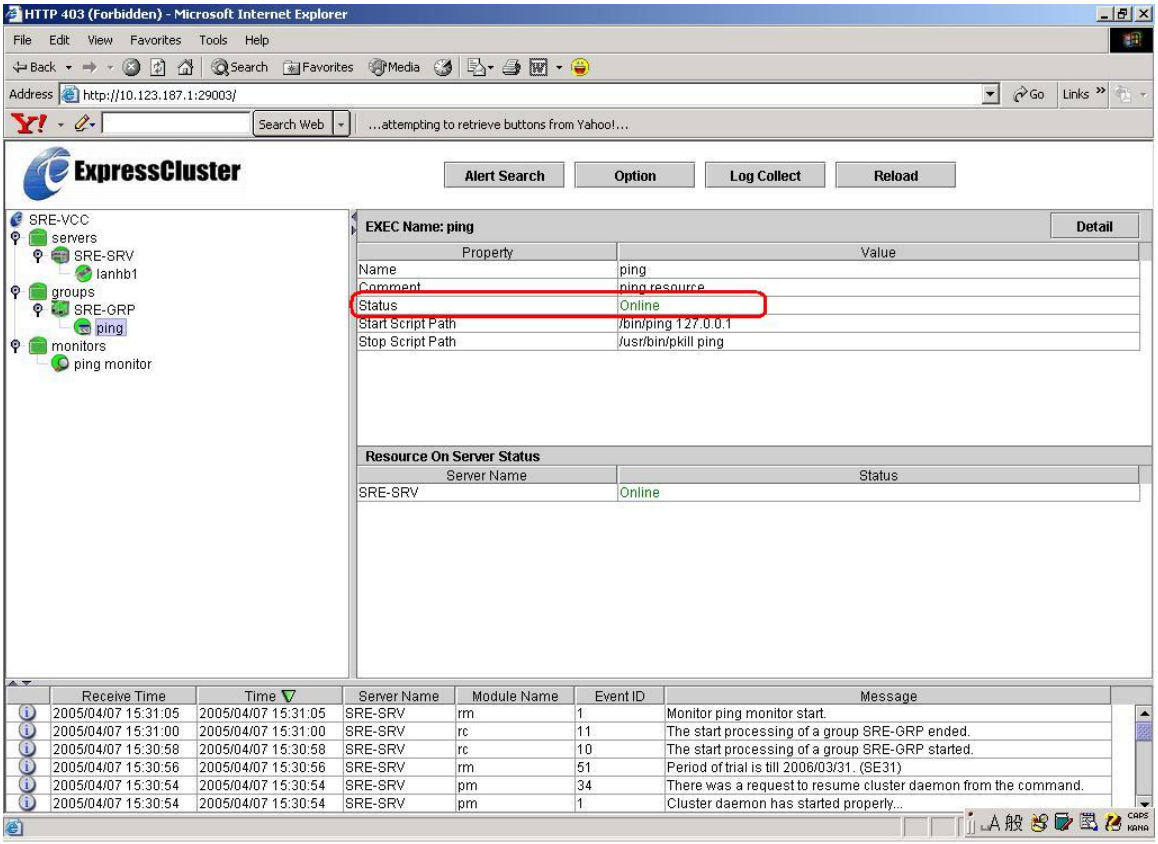
Step 1
Use the left mouse button and click on the group name SRE-GRP as below:



The status for the group, server and ping resource are shown Online.

Viewing Monitored Resource Status

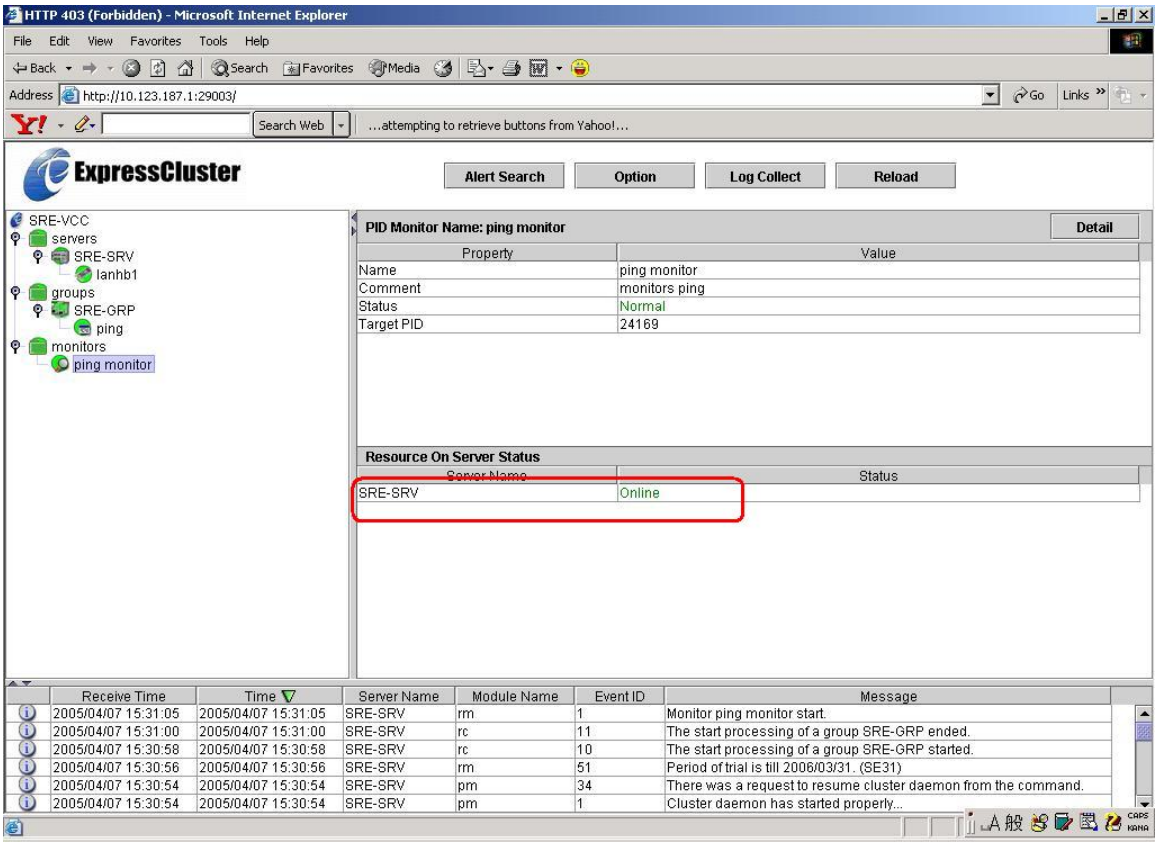
Step 1
Use the left mouse button and click on the resource name “ping” as below:



The status of the “ping” resource (/bin/ping 127.0.0.1) is shown Online.

Viewing Monitor Resource Status

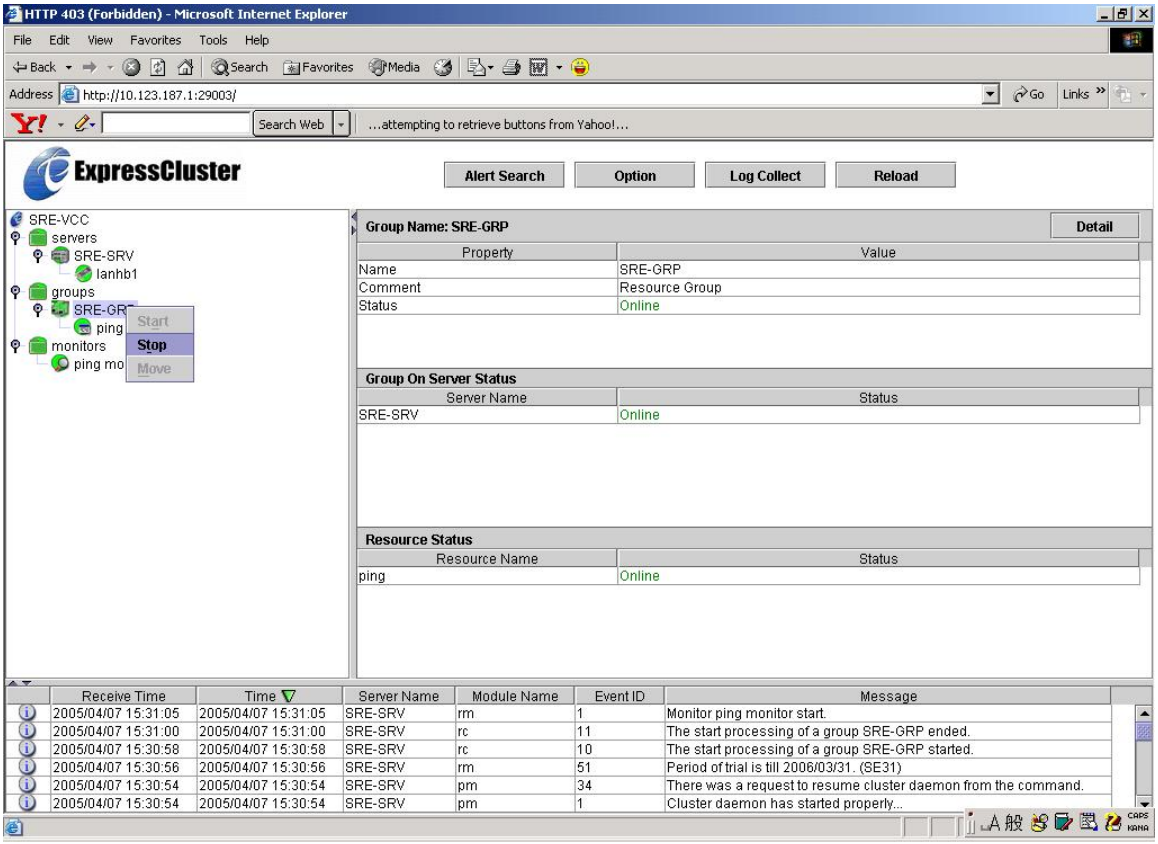
Step 1
Use the left mouse button and click on the monitor resource name “ping monitor” as below:



The status of the “ping monitor” resource is shown Online.

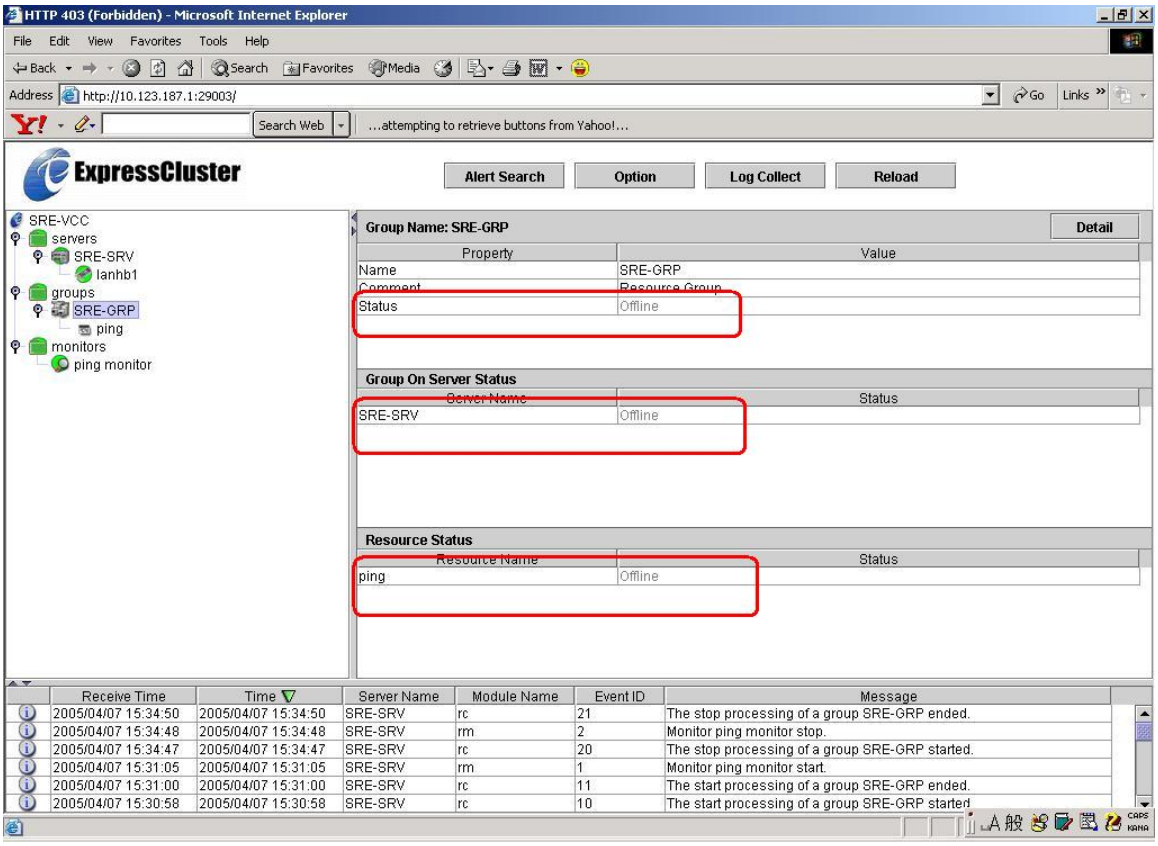
Stopping a Group

Step 1
Right click on the group SRE-GRP and select stop as below:



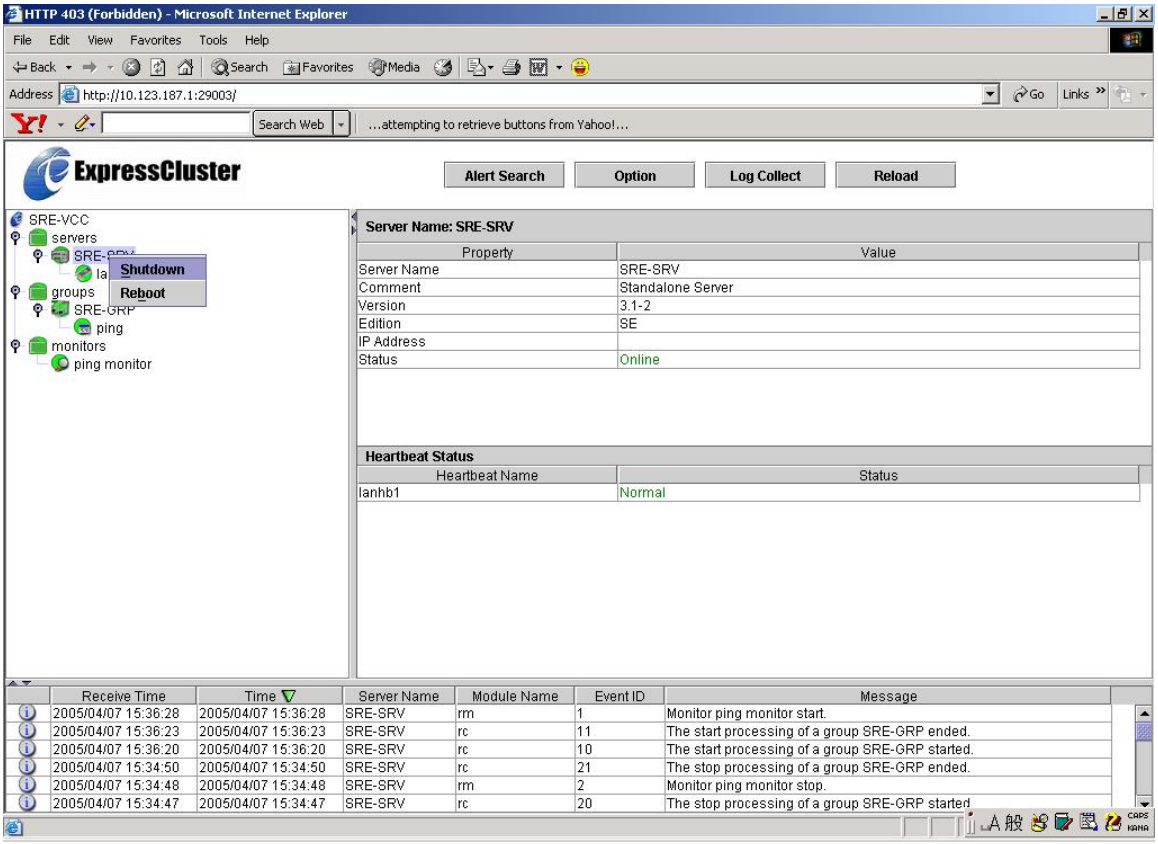
Step 2
Click OK on the following screen:

The group will be stopped and all resources are offline as below:



Shutting down a Server

Step 1
Right click on the server SRE-SRV and select *Shutdown*:

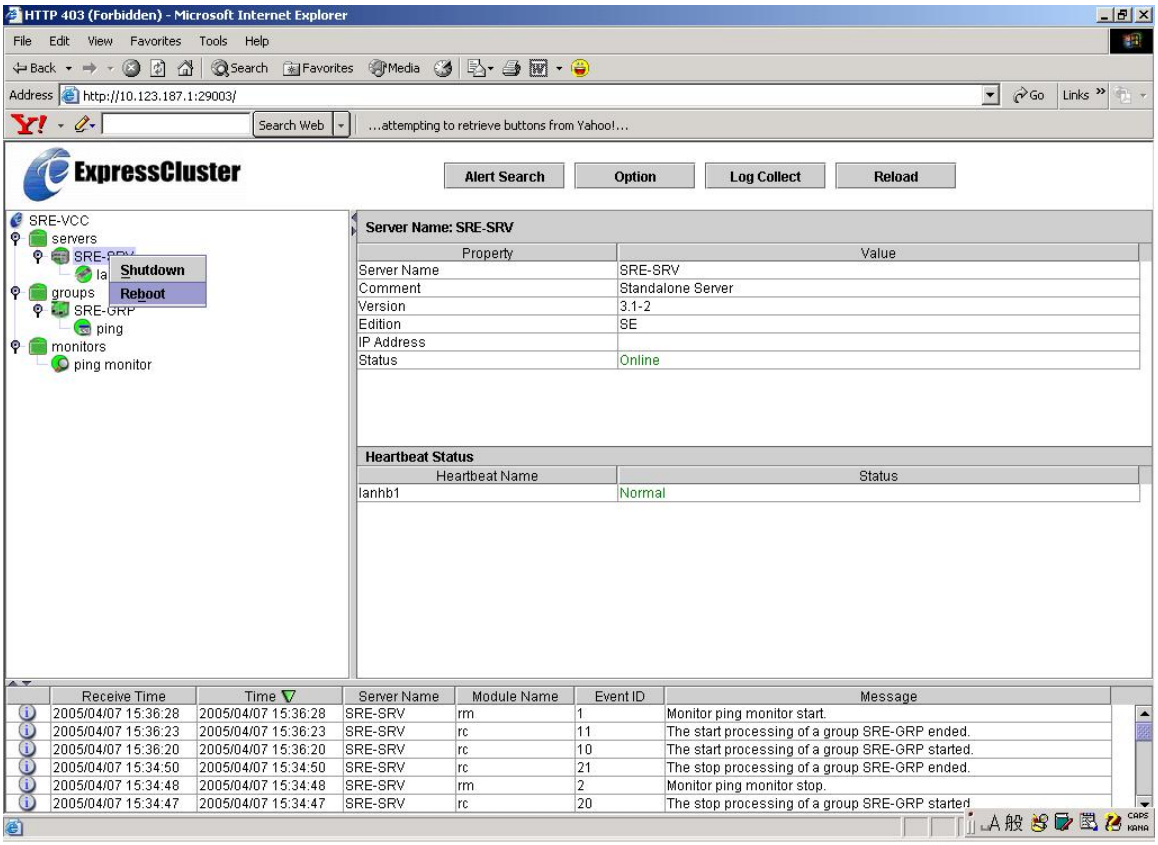


Step 2:
Click OK on the following screen:

The server will shutdown completely.

Restarting a Server

Step 1
Right click on the server SRE-SRV and select *Reboot*:



Step 2:
Click OK on the following screen:

The server will be restarted.

Chapter 5: Management Configuration Client Installation

Overview

The Management Configuration Client is a Java Applet used for configuring scripts to monitor processes on the server

Prerequisites

Please refer to the **Server Prerequisites** and **Standalone Computer Prerequisites** sections of Chapter 3, since prerequisites for the Management Configuration Client are the same as the Management Client and can be installed on the same machine.

Windows Installation

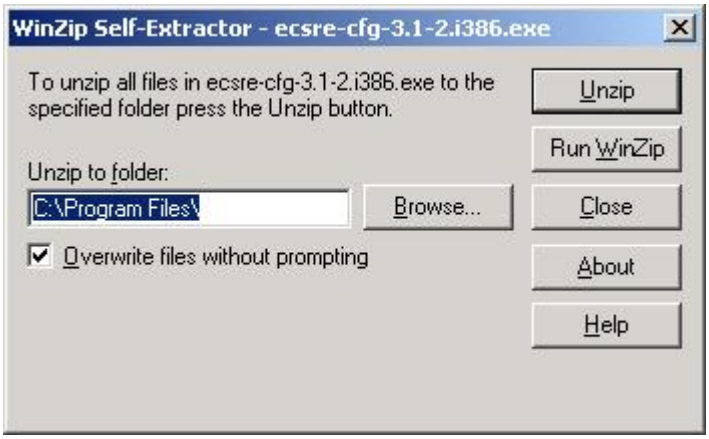
Step 1

Note:
*If this is not the first time you are installing the Management Configuration Client, please remember to back up the "**clp.conf**" file present in "**C:\Program Files\clptrek\etc**" if you wish to retain the previous configuration.*

Double click the file `ecsre-cfg-3.1-2.i386.exe` from the folder:

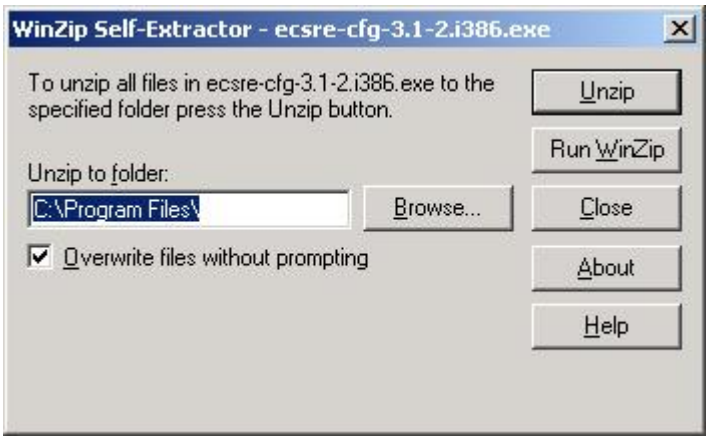
`<CD>\manager`

Click *Unzip*:



Step 2
Click *OK* on the following screen:

Step 3
Click *Close* on the following screen:



This completes the installation of the Management Configuration Client.

Setting Java Security

Pre-requisites:
Ensure that you exit out from all Browsers before you execute the steps below:

Step 1
Open Windows Explorer and browse to the following location:

`C:\Documents and Settings\<USERNAME>`

Here <USERNAME> is the name of the user logged in.

Step 2
Check to see if .java.policy file is present.

If ***not*** present, please ***execute Step 3*** and ***skip Step 4***.

If present ***skip Step 3,*** and ***execute Step 4.***

Step 3 ***(Execute this step if not present)***
Copy the .java.policy file present in C:\Program Files\nec\clptrek\etc\ to the following directory:

C:\Documents and Settings\<USERNAME>

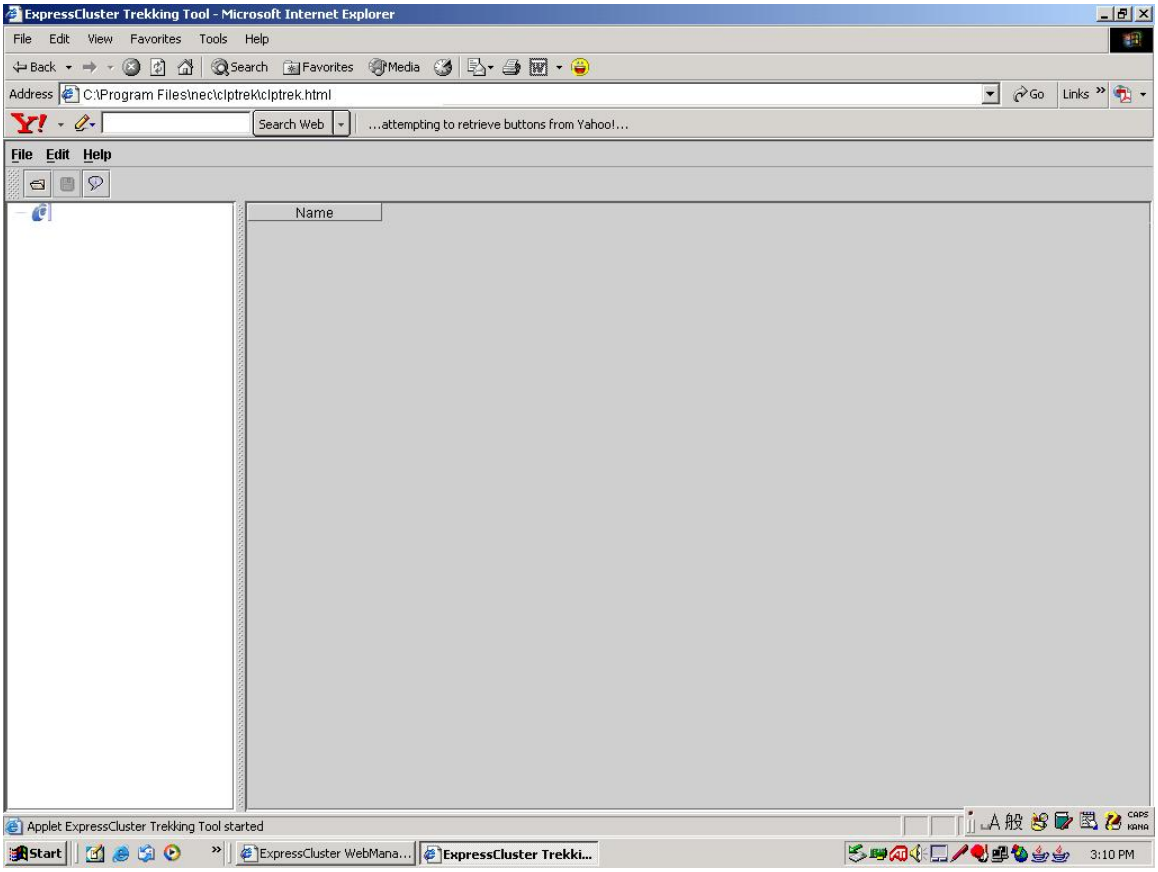
Step 4 ***(Execute this step if present)***
Open the .java.policy file in WordPad and add the following lines to the end of the file:

```
grant codeBase "file:C:/Program Files/nec/clptrek/clptrek.jar" {
  permission java.security.AllPermission;
};
```

Note:
The path specified above needs to be delimited by “/” not “\”.

Step 5
Open Internet Explorer, type in C:\Program Files\nec\clptrek\clptrek.html and confirm that the Script Customization Tool is installed successfully.

You will see the screen as below:



Linux Installation

Step 1
Insert the installation CD into the CD ROM drive

Step 2
Login as “root” with the password set for the “root” user.

Step 3
Type in the following to mount the CD as read only:

```
mount –o ro /dev/cdrom /mnt
```

Step 4
Type in the following:

```
rpm –i /mnt/manager/ecsre-cfg-3.1-2.i386.rpm
```

Step 5
You could verify that the rpm is installed successfully by the following command:

```
rpm –q ecsre-cfg-3.1-2
```

The output will be:

```
ecsre-cfg-3.1-2
```

This completes the installation of the Script Customization Tool

Setting Java Security

Pre-requisites:
Ensure that you exit out from all Browsers before you execute the steps below:

Step 1
Check to see if .java.policy file is present in your home directory.

Note:
If you are logged in as “root”, your home directory is”/root”.
*If you are logged in as a user, your home directory is”/home/<**user**>”.*

If ***not*** present, please ***execute Step 2*** and ***skip Step 3***.

If present ***skip Step 2,*** and ***execute Step 3.***

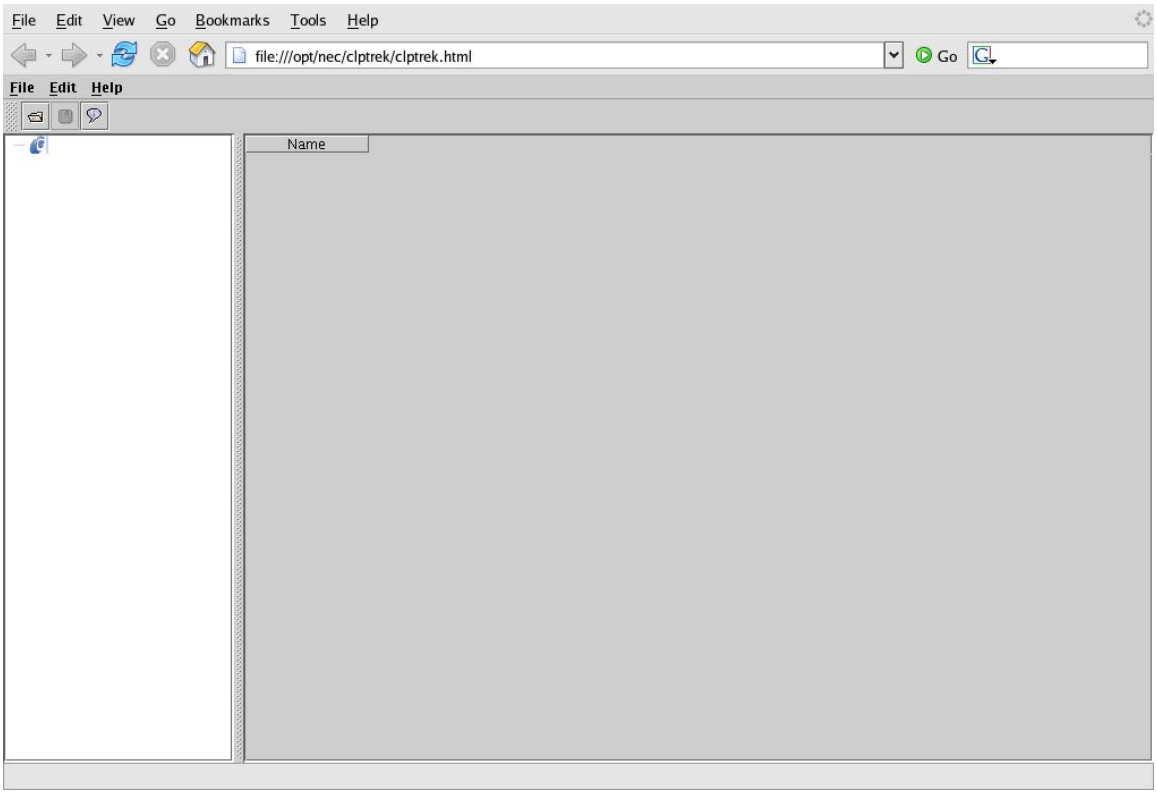
Step 2 ***(Execute if not present)***
Copy the .java.policy file present in /opt/nec/clptrek/etc into your home directory.

Step 3 ***(Execute if present)***
Open the .java.policy file in the "vi" editor and add the following lines to the end of the file:

```
grant codeBase "file:/opt/nec/clptrek/clptrek.jar" {
  permission java.security.AllPermission;
};
```

Note:
The path specified above needs to be delimited by "/" not "\".

Step 4
Open the browser, type in /opt/nec/clptrek/clptrek.html and confirm that the Script Customization Tool is installed successfully. You will see the screen as below:



Chapter 6: Management Client Security Configuration

Overview

Management Client Security can be configured by restricting server access either to clients with specific IP addresses or to all clients within a network segment. Once the security is configured, only clients with the specific IP addresses or clients within the specified network addresses can use the Management Client user interface to operate the server.

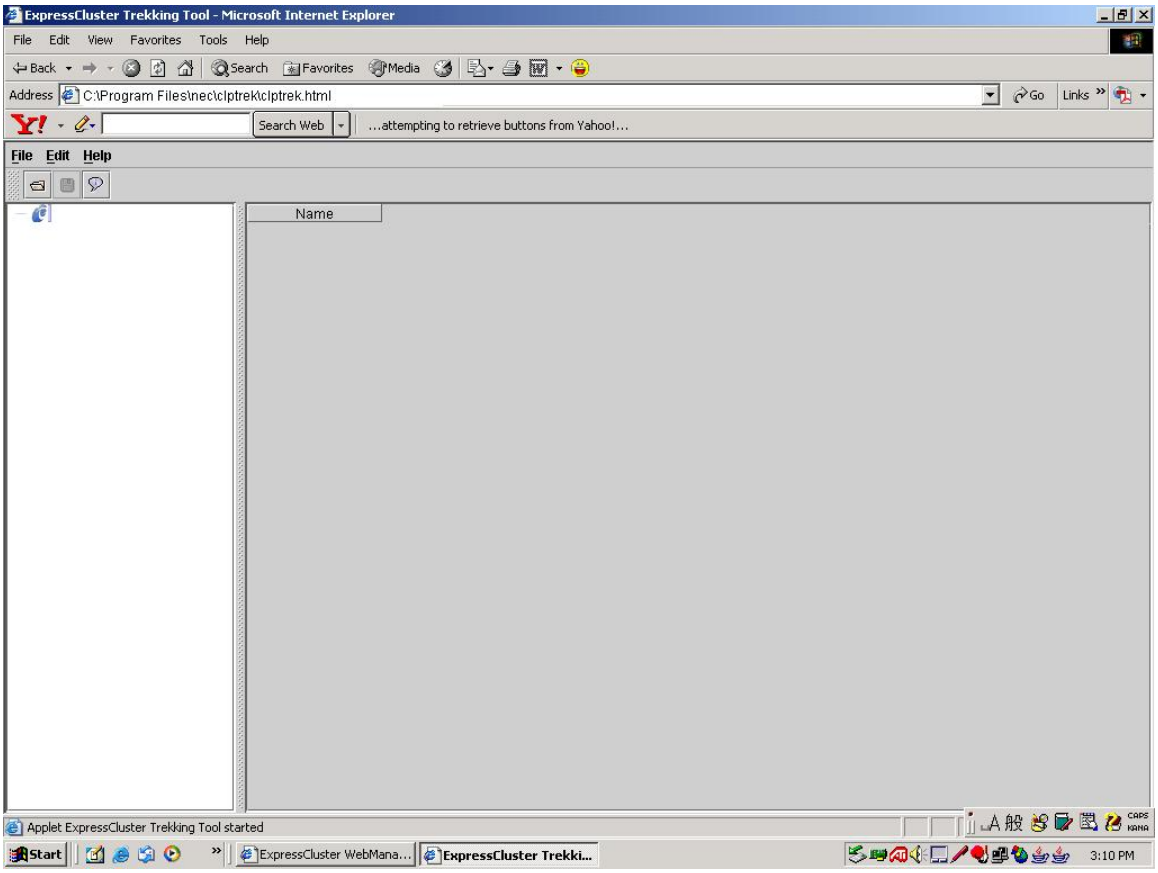
The following section walks you through the steps to configure security using the Management Configuration Client tool. You can execute these steps anytime you wish to configure client security.

Configuration Steps

Step 1

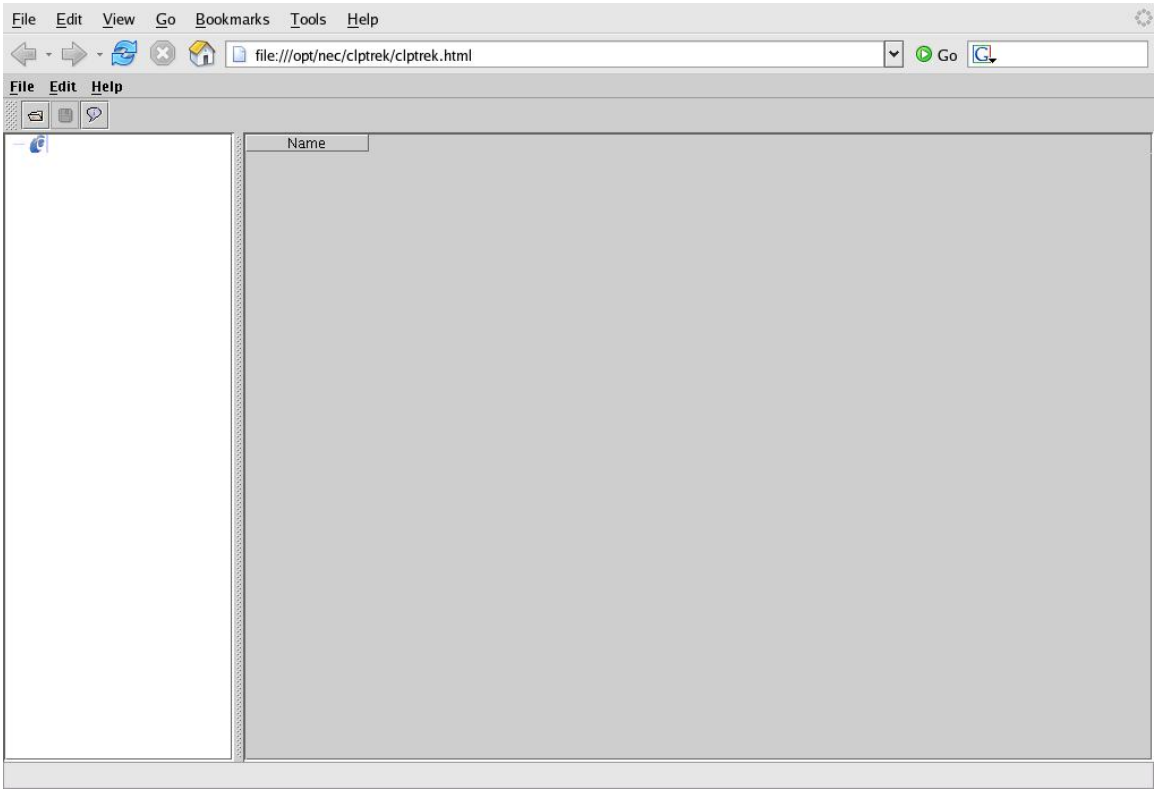
<For Windows>

Open Internet Explorer, type in *C:\Program Files\nec\clptrek\clptrek.html* in the address bar. You will see the screen as below:

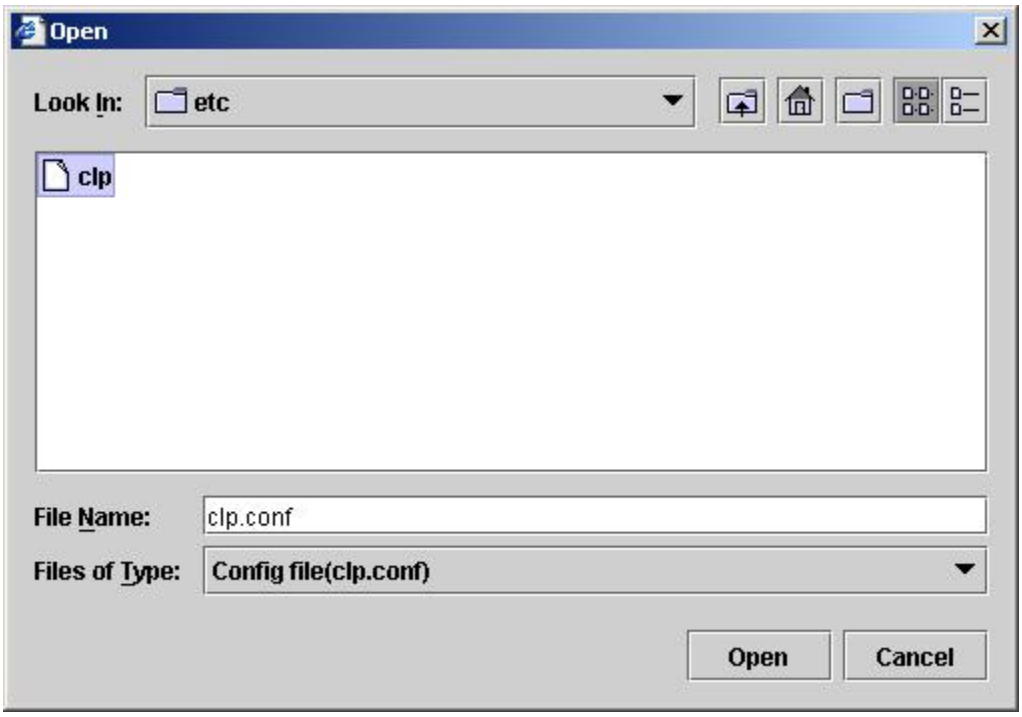


<For Linux>

Open the browser, in the address bar type in */opt/nec/clptrek/clptrek.html*. You will see the screen as below:

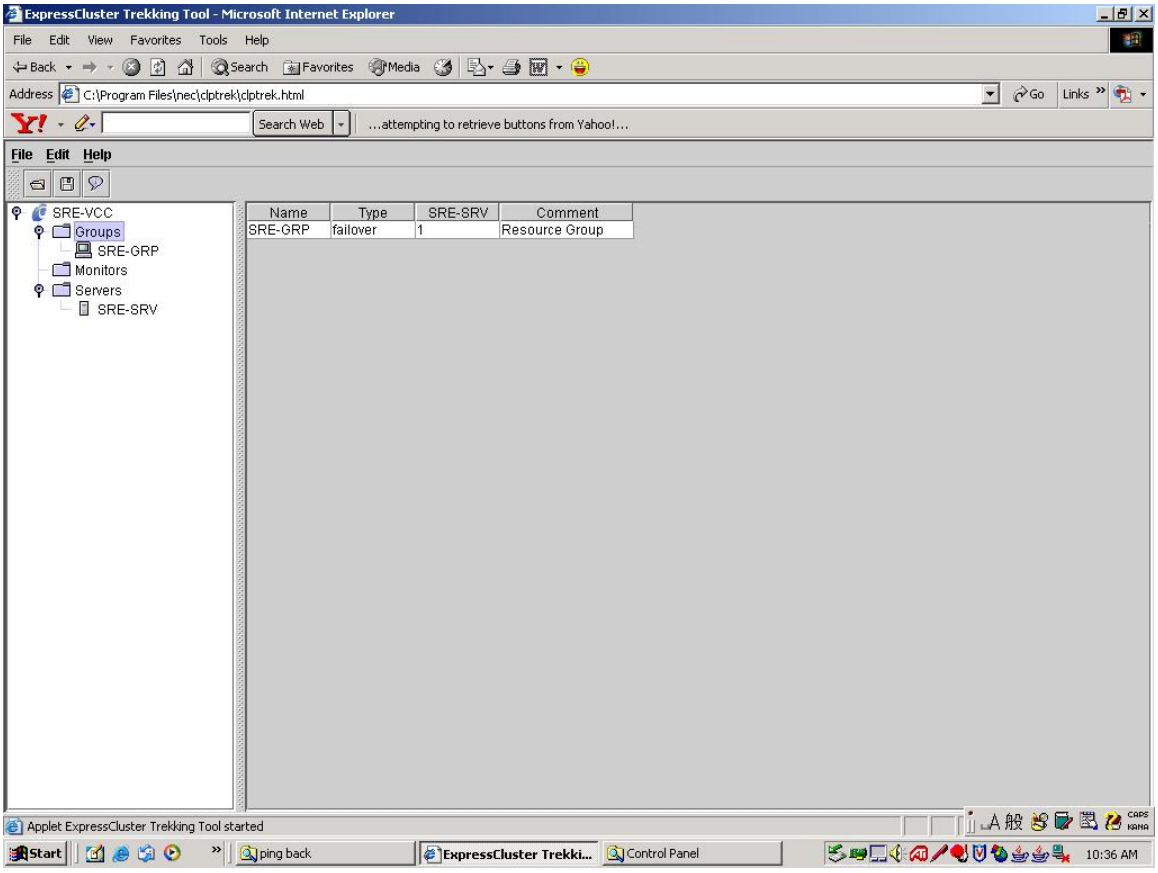


Step 2
<For Windows>
Click *File -> Open the configuration file-> Change the cluster configuration* and navigate to C:\Program Files\nec\clptrek\etc\ and open clp.conf as below:

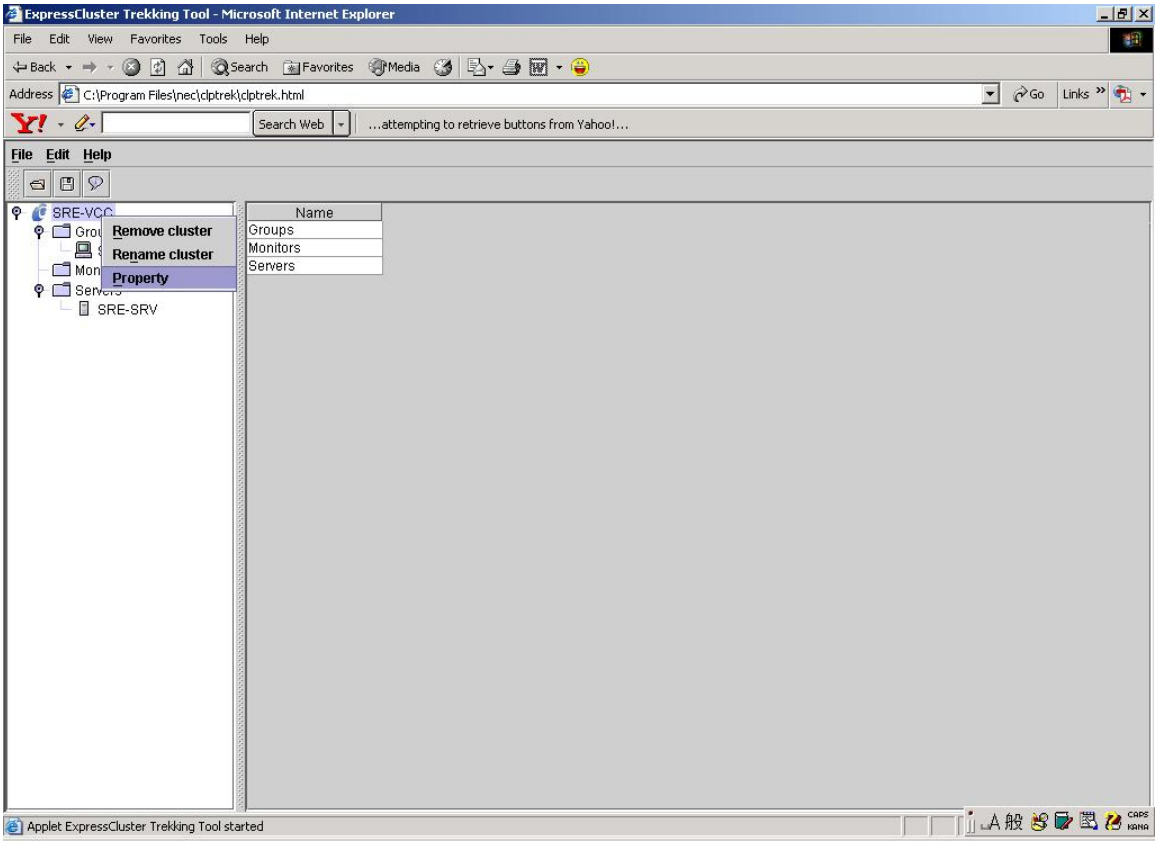


<For Linux>
Click *File -> Open the configuration file-> Change the cluster configuration* and navigate to /opt/nec/clptrek/etc/ and open clp.conf as below:

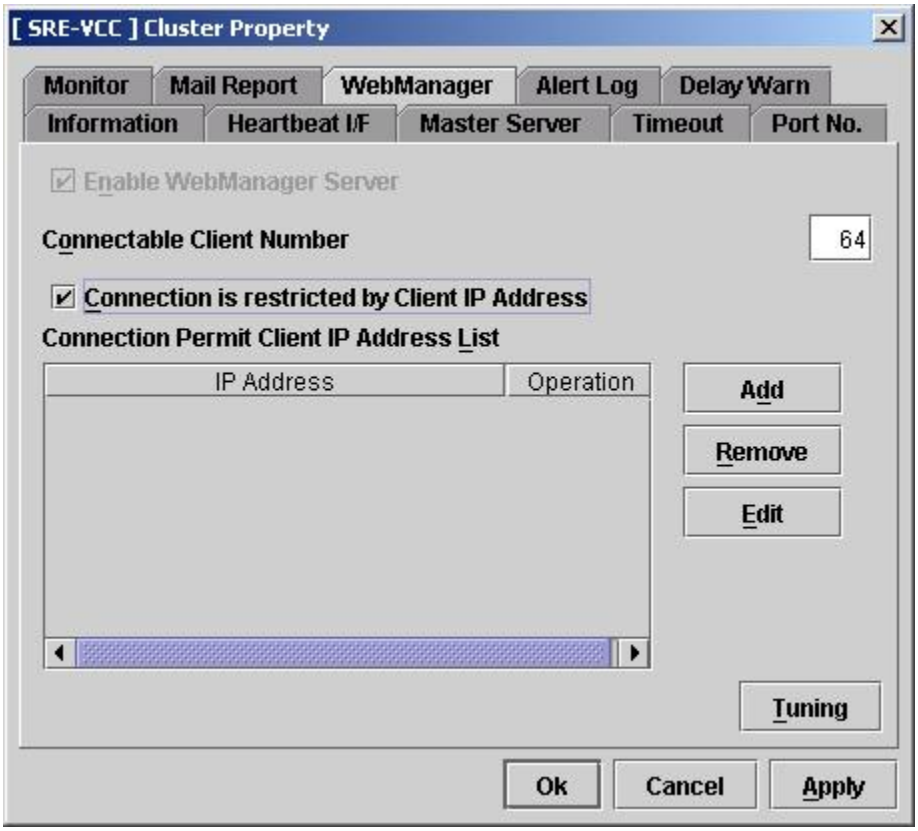
Step 3
The following screen will be displayed:



Step 4
Right click on the cluster SRE-VCC and select the *Property* popup menu item as below:



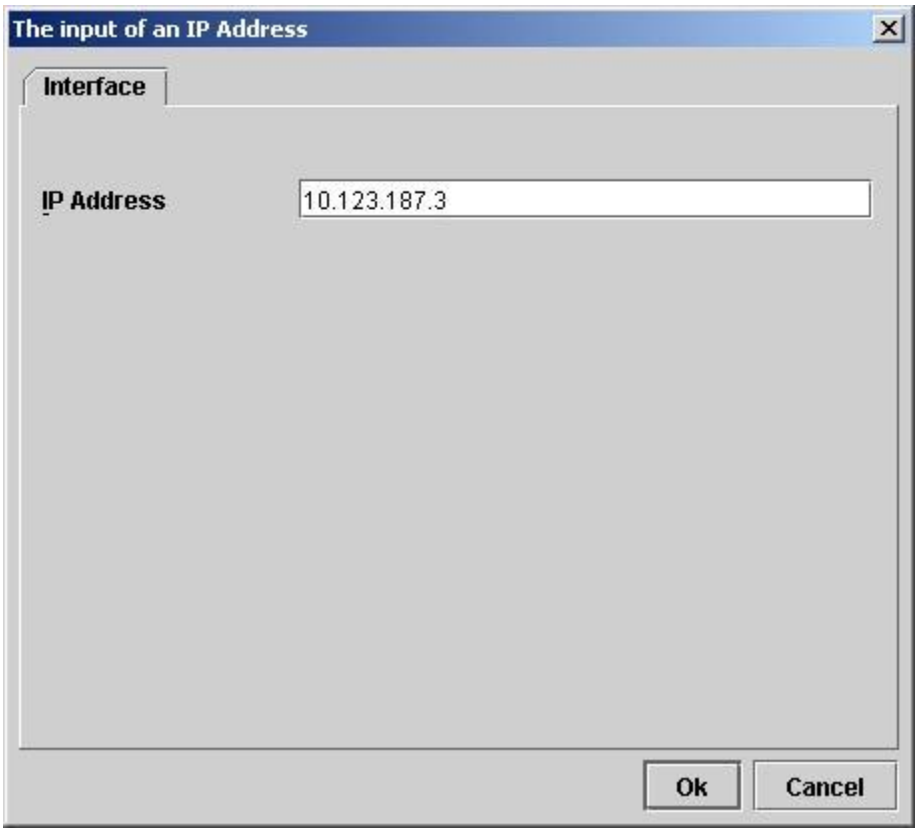
Step 5
Select the *WebManager* tab, check the *Connection is restricted by Client IP Address* check box and click the *Add* button:



Step 6

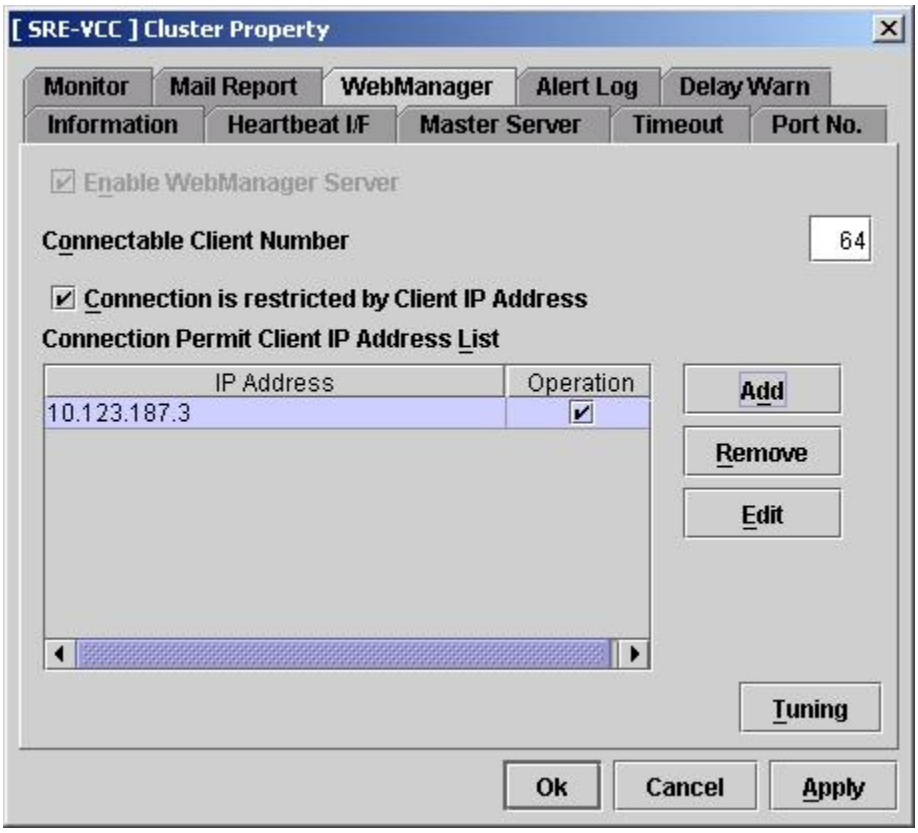
In the edit box specify either of the following:

1. A specific client IP address which would be the only client that would have access to the server (e.g. 10.123.187.3) OR
2. A network addresses which would enable access to all the clients within the specified network segment (e.g.10.123.187.0/24)



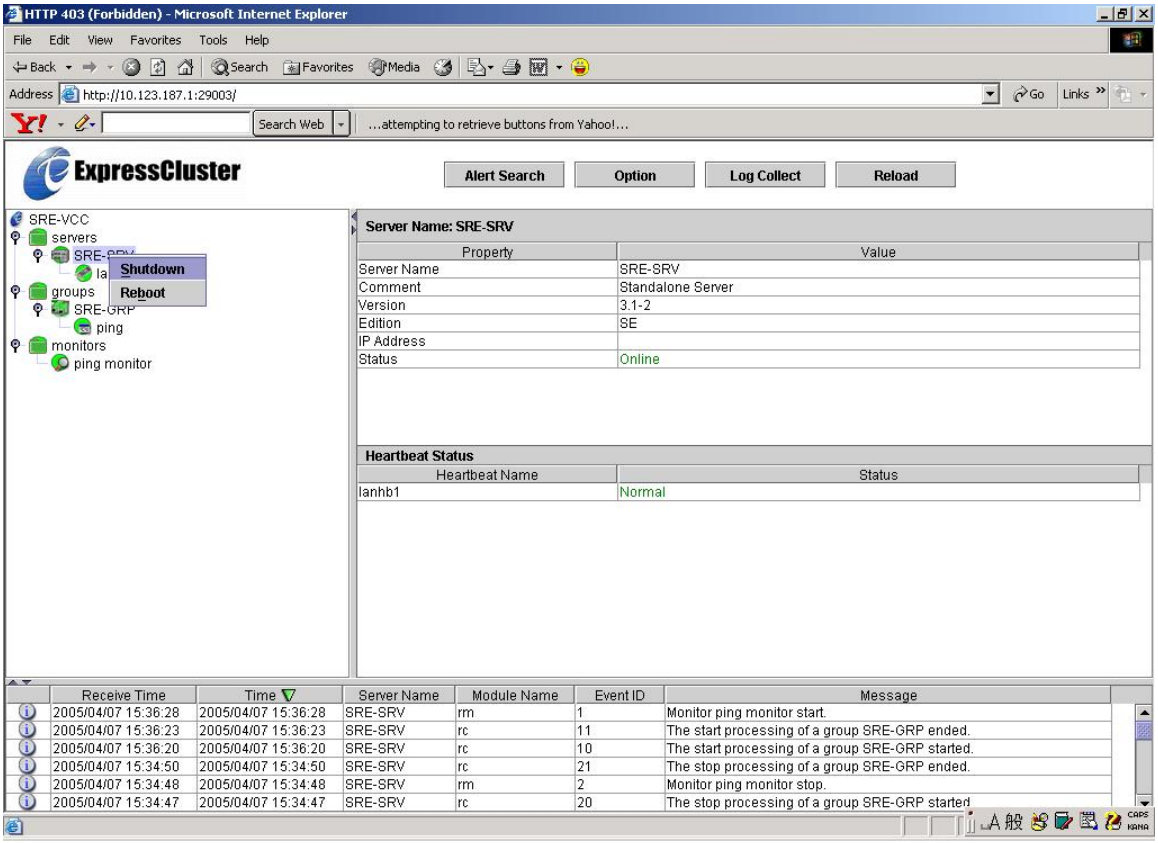
Click *OK* once done

Step 7
The *Operation* check box is selected by default as below:



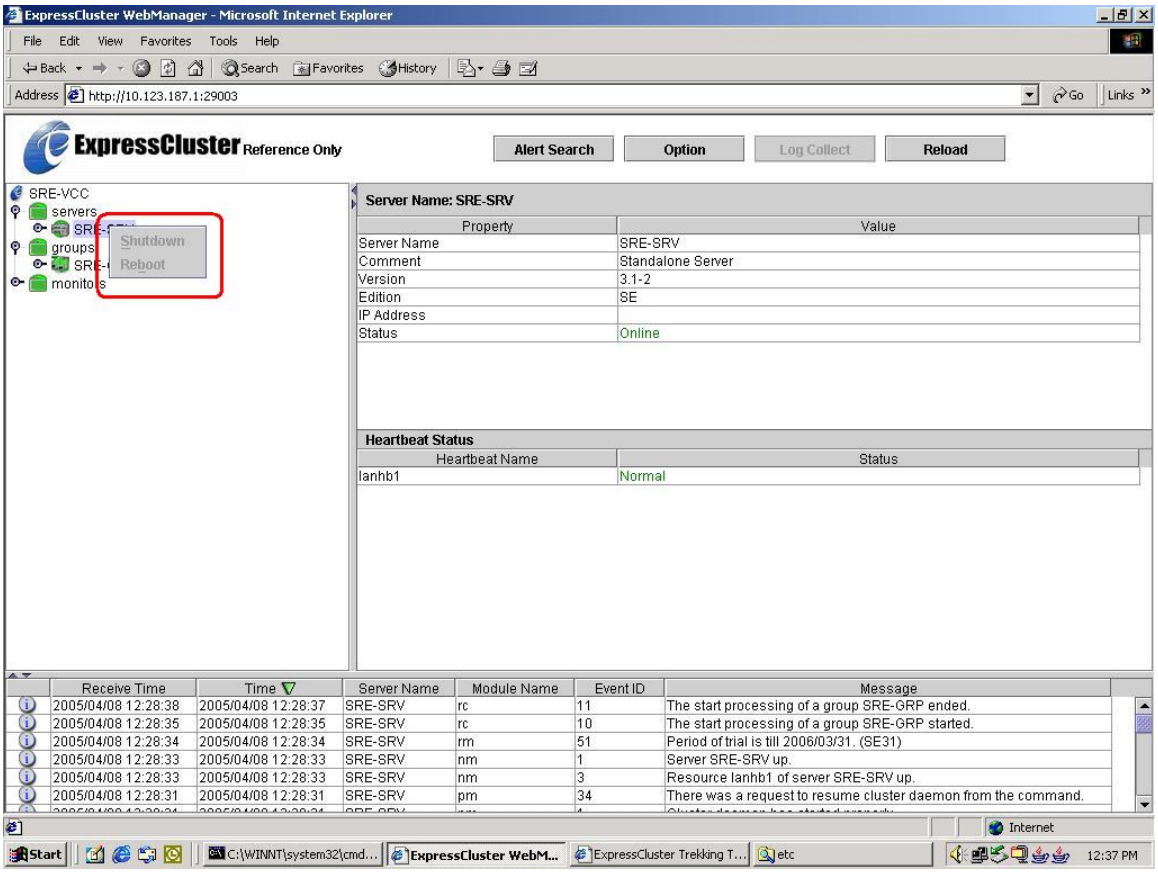
If selected, clients accessing the server can view the status and also perform basic operations like shutdown, reboot, stop group, start group etc.

A sample screenshot for a client with IP address 10.123.187.3 with the *Operation* checkbox ***checked*** is as below:



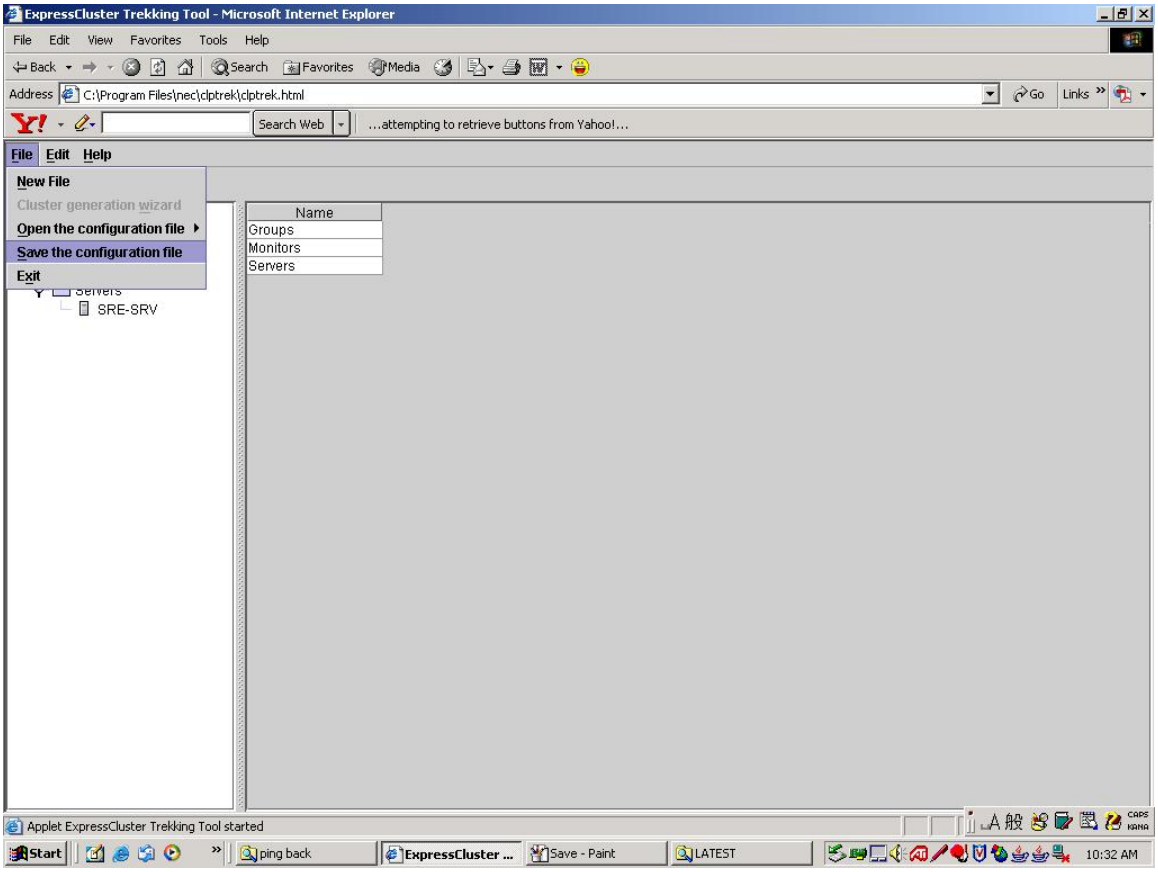
If de-selected, clients accessing the server can only view the status and would ***not*** be able to perform basic operations like shutdown, reboot stop group, start group etc.

A sample screenshot for a client with IP address 10.123.187.3 with the *Operation* checkbox ***un-checked*** is as below:



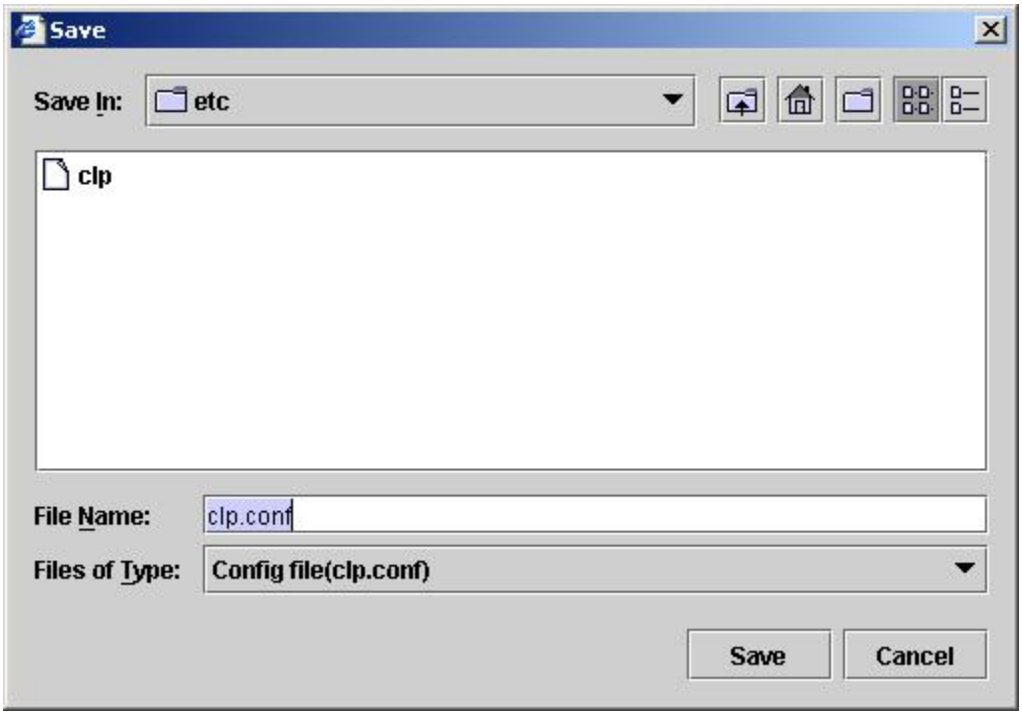
Check or Uncheck the *Operation* check box according to your requirement, click *Apply* and *OK* once done.

Step 8
Select *File -> Save the configuration file*:

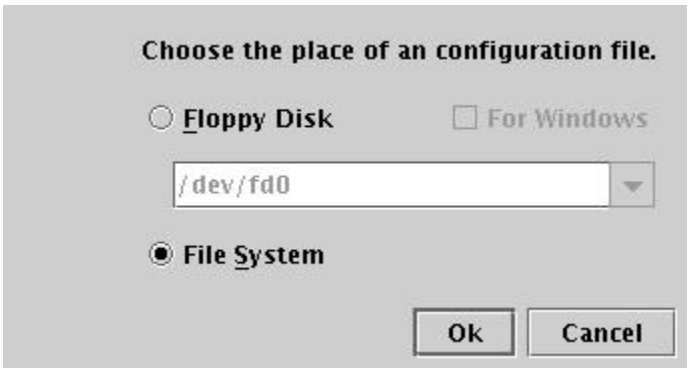


Step 9

<For Windows>
Select *clp.conf* and click *Save*:



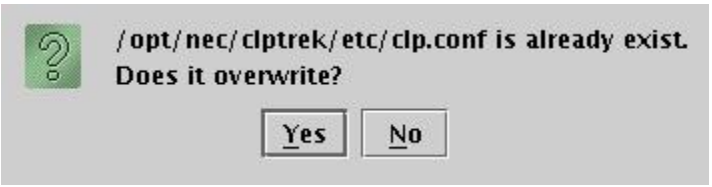
<For Linux>
Select *File System* and Click *OK* on the following screen



Select *clp.conf* and click *Save*:

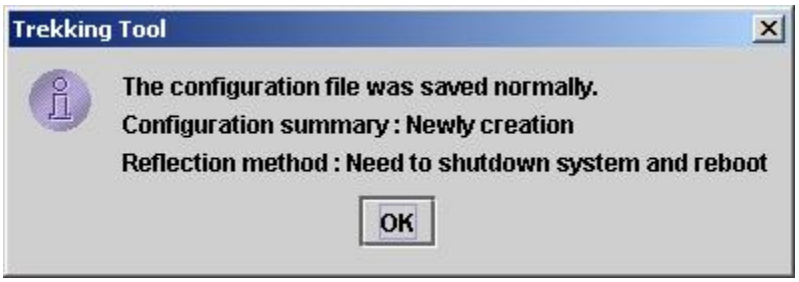
Step 10
<For Windows>
Click *Yes* on the following screen:

<For Linux>
Click *Yes* on the following screen:



Step 11
Note:
You do not need to reboot the server at this time.

Please ignore this dialog below and click *OK*:


Trekking Tool
The configuration file was saved normally.
Configuration summary : Newly creation
Reflection method : Need to shutdown system and reboot
OK

This completes the security configuration for management clients.

Configuration Distribution

Pre-requisites

Please ensure that the ftp daemon is started on the FT-Linux server. Please refer to Appendix E: Starting the ftp daemon to start the wu-ftpd daemon on the server.

Distribution Steps

Note:
Steps 1 through 3 needs to be executed just one time.

Step 1
Add a user “sreadmin” using the command:

```
adduser sreadmin
```

Step 2
Set the password for “sreadmin” as “sreadmin” with the command:

```
passwd sreadmin
```

When prompted for the new password type in “sreadmin”

Step 3
Create a directory called scripts in the /home/sreadmin folder using the following commands:

```
cd /home/sreadmin
mkdir scripts
```

Step 4

<***Windows***>
From the client computer start the command prompt (*Start->Run->cmd*) and type in the following:

```
cd C:\Program Files\nec\clptrek\etc\
```

<***Linux***>
From the client computer type in:

```
cd /opt/nec/clptrek/etc/
```

Step 5
Connect to the server using ftp <IP address> with the user name as "sreadmin" and password "sreadmin"

e.g. **ftp 10.123.187.1**

Note:
If you encounter the error: "ftp: connect : Connection refused" you missed the pre-requisite stated above. Please refer to ***Appendix E: Starting the ftp daemon*** *to start the wu-ftpd daemon on the server, and repeat Step 5.*

Step 6
```
ftp> mput clp.conf
```

Step 7
Quit out of ftp typing in bye:
```
ftp> bye
```

Step 8
On the FT-Linux server, execute the following command:

```
/opt/nec/clusterpro/management/sre-push
```

Hit Return when prompted as below:
```
…
…
Need to shutdown system and reboot
please shutdown system after push. (hit return) : <HIT RETURN HERE>
file delivery to server 127.0.0.1 success.
…
…
```

Note:
You do not need to reboot the server at this time

The group will be started and the cluster will be resumed.

Step 9
Execute the following command:
`/opt/nec/clusterpro/management/sre-mgr-restart`

The webalert daemon and the webmanager server will be restarted.

Step 10
The security settings for the management clients will now be set and only clients permitted to access the server can view/operate the server using the Management Client user interface.

Chapter 7: Customization for Sendmail

Prerequisites

1. The sendmail daemon needs to be stopped. Please verify its status using:

   ```
   service sendmail status
   ```

   The output will be similar to:

   ```
   sendmail (pid 8366) is running...
   ```

   If sendmail is running, please stop sendmail using the command:

   ```
   service sendmail stop
   ```

2. The sendmail daemon should not startup automatically when the Operating System boots up. ExpressCluster SRE would automatically start up and shuts down the sendmail daemon once configured with the steps explained below.

   Please execute the following command to disable sendmail from automatic startup at boot time:

   ```
   chkconfig --del sendmail
   ```

Customization Steps

Step 1
Suspend the cluster using the following:

```
/opt/nec/clusterpro/management/sre-suspend
```

Step 2
Run the following commands to enable sendmail monitoring:

```
cd /opt/nec/clusterpro/etc/
```

```
cp clp.conf.sendmail clp.conf
```

If you are prompted for overwrite, type “y” and hit enter.

Step 3
Resume the cluster using the following:

```
/opt/nec/clusterpro/management/sre-resume
```

Step 4
You can verify the status of the cluster using

```
clpstat –s
```

The output will be similar to:

```
=====================  CLUSTER STATUS  ============================
 Cluster : SRE-VCC
   <server>
   *localhost .......   : Online           Standalone Server
         lanhb1         : Normal           LAN Heartbeat
   <group>
       SRE-GRP .........: Online           Resource Group
         current        : localhost
         sendmail       : Online           sendmail service
   <monitor>
       sendmail monitor : Normal           monitor sendmail service
================================================================
```

Step 5
You can verify that the sendmail daemon is started up using the following command:

```
service sendmail status
```

The output will be similar to:

```
sendmail (pid 8366) is running...
```

Step 6
If sendmail is terminated, it is automatically restarted. If it is terminated “4” times (which is more than the threshold set as “3”) within “4 X 30 = 120” seconds, the server is rebooted automatically.

You can verify this by terminating sendmail using:

```
kill -9 <pid>
```

The <***pid***> of sendmail can be obtained using the command:

```
service sendmail status
```

The output will be similar to:

```
sendmail (pid 8366) is running...
```

In this case the <***pid***> is 8366.

Chapter 8: General Customization

Overview

Processes to be monitored may be classified into two categories:

1. Processes that remain attached to a terminal when started (e.g. “ping”). These processes ***do not fork*** child processes.
2. Processes that do not remain attached to a terminal when started (e.g. “squid”). These processes ***fork*** other child processes.

The customization steps explained are common for both the categories above, unless stated otherwise.

The customization involves two major steps:

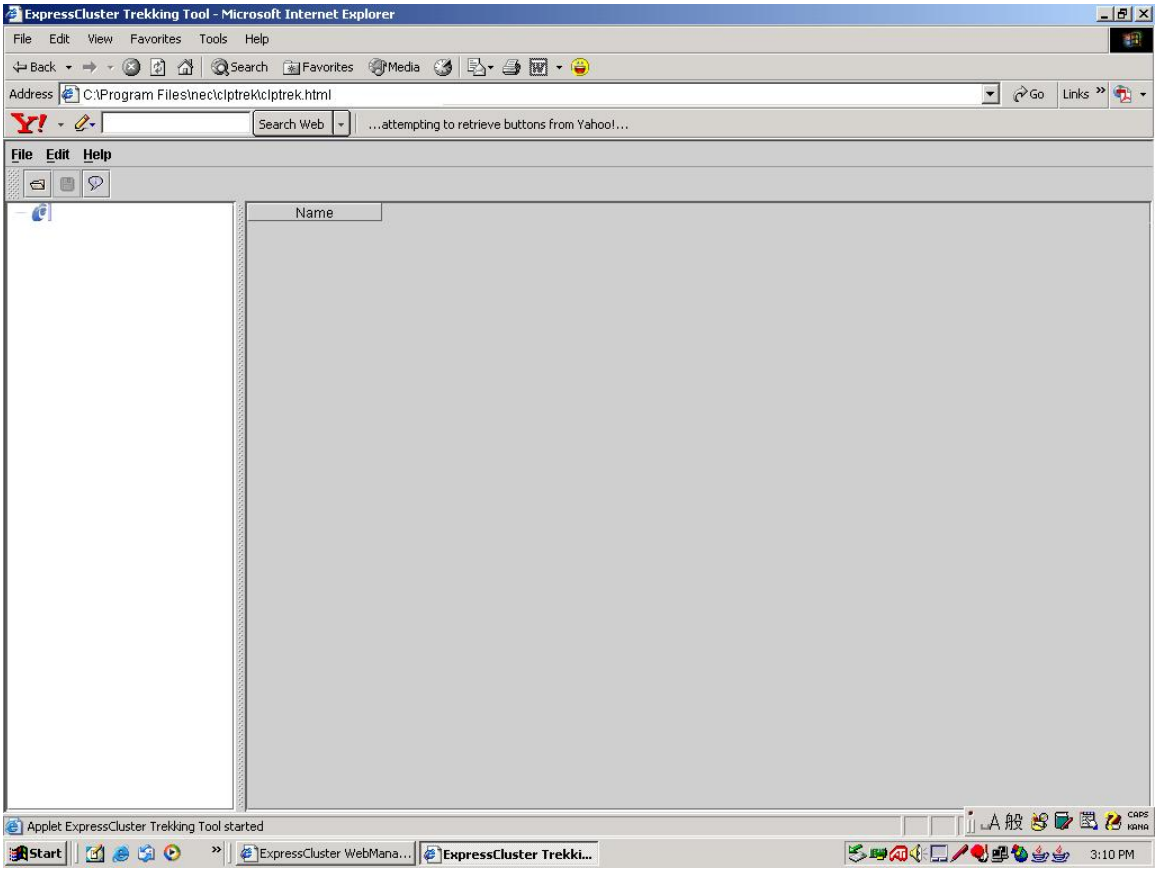
1. Creating the target resource that starts the process to be monitored
2. Creating the monitoring resource that monitors the target resource. This monitoring resource attempts to restart target resource in case of termination. If the target resource terminates more than a set threshold number of times, in a given time interval, the server is rebooted automatically.

Customization Steps

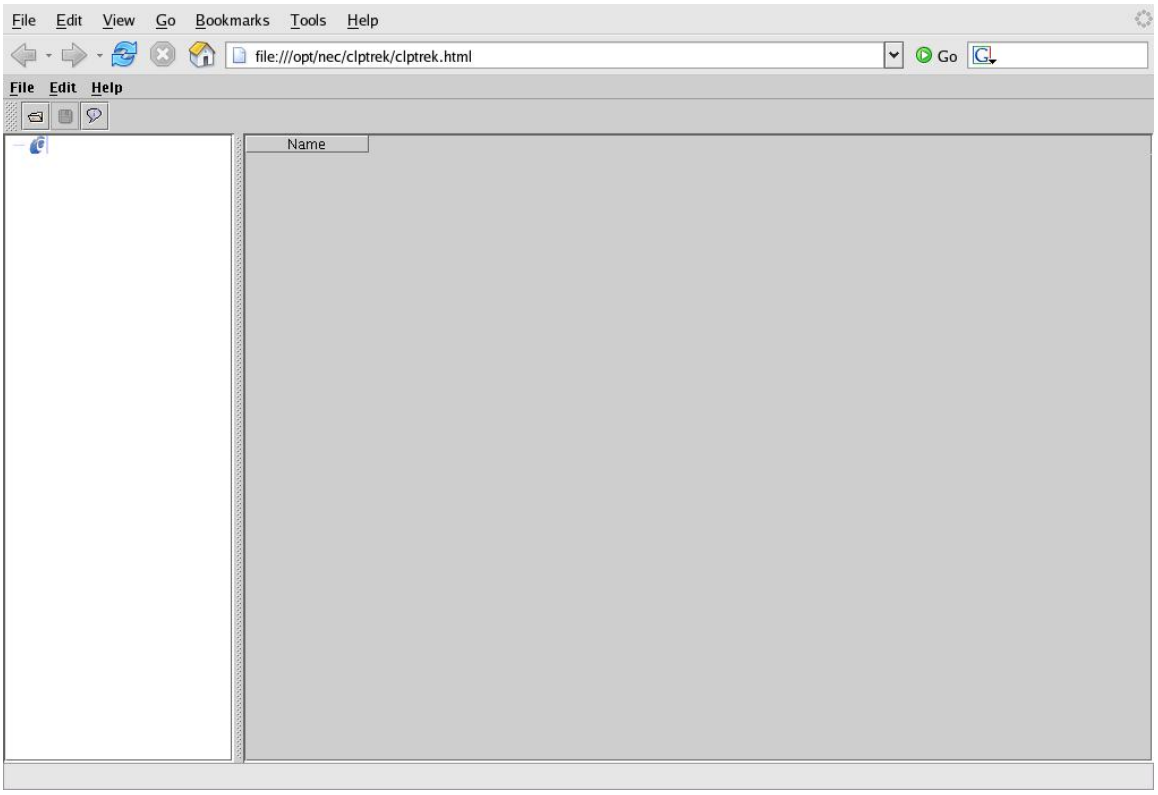
Creating the target resource

Step1

<For Windows>
Open Internet Explorer, type in *C:\Program Files\nec\clptrek\clptrek.html* in the address bar. You will see the screen as below:

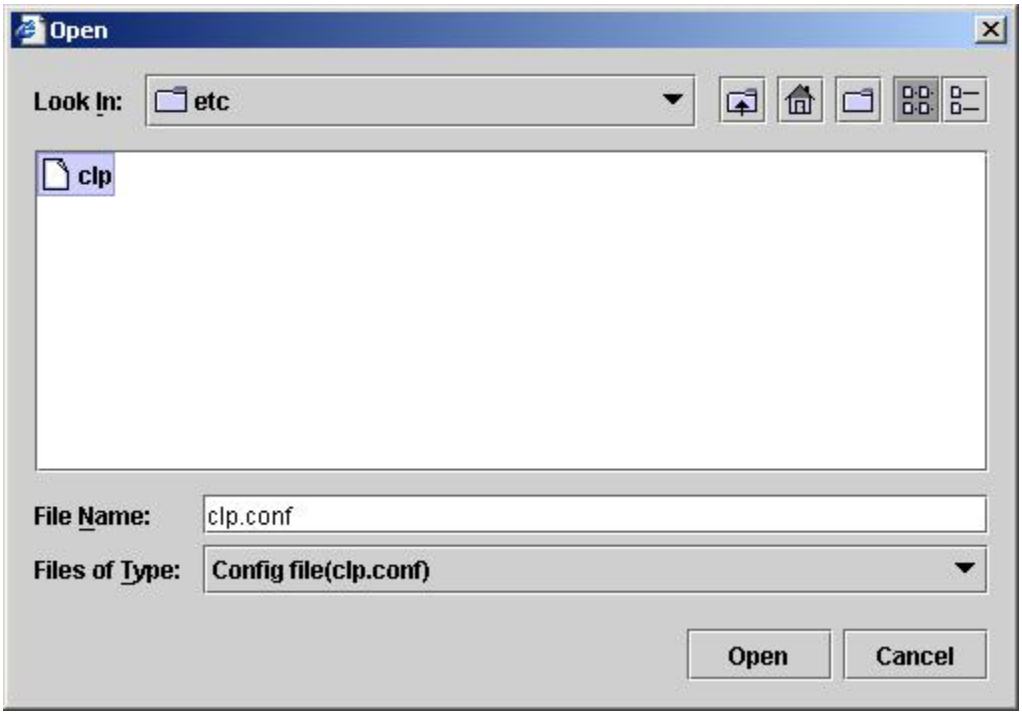


<For Linux>
Open the browser, in the address bar type in */opt/nec/clptrek/clptrek.html*. You will see the screen as below:



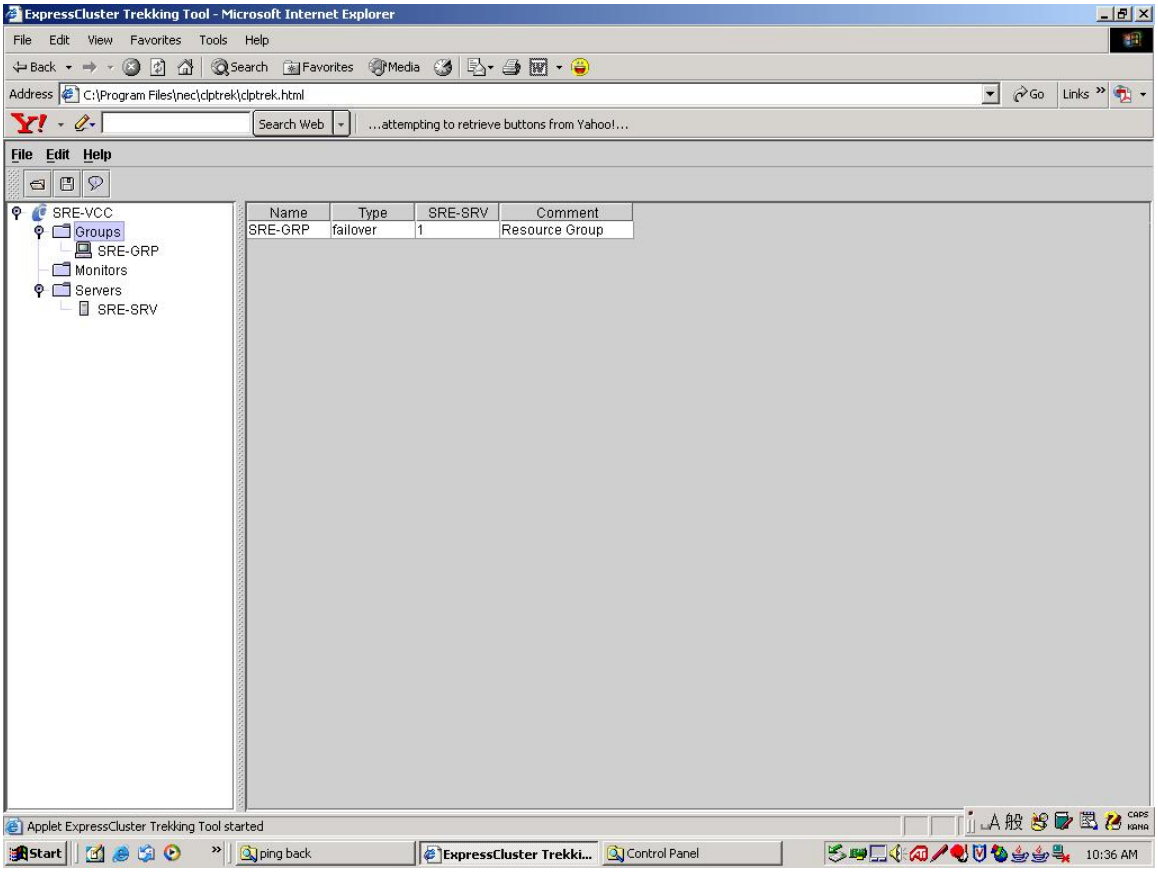
Step 2

<For Windows>
Click *File -> Open the configuration file-> Change the cluster configuration* and navigate to C:\Program Files\nec\clptrek\etc\ and open clp.conf as below:

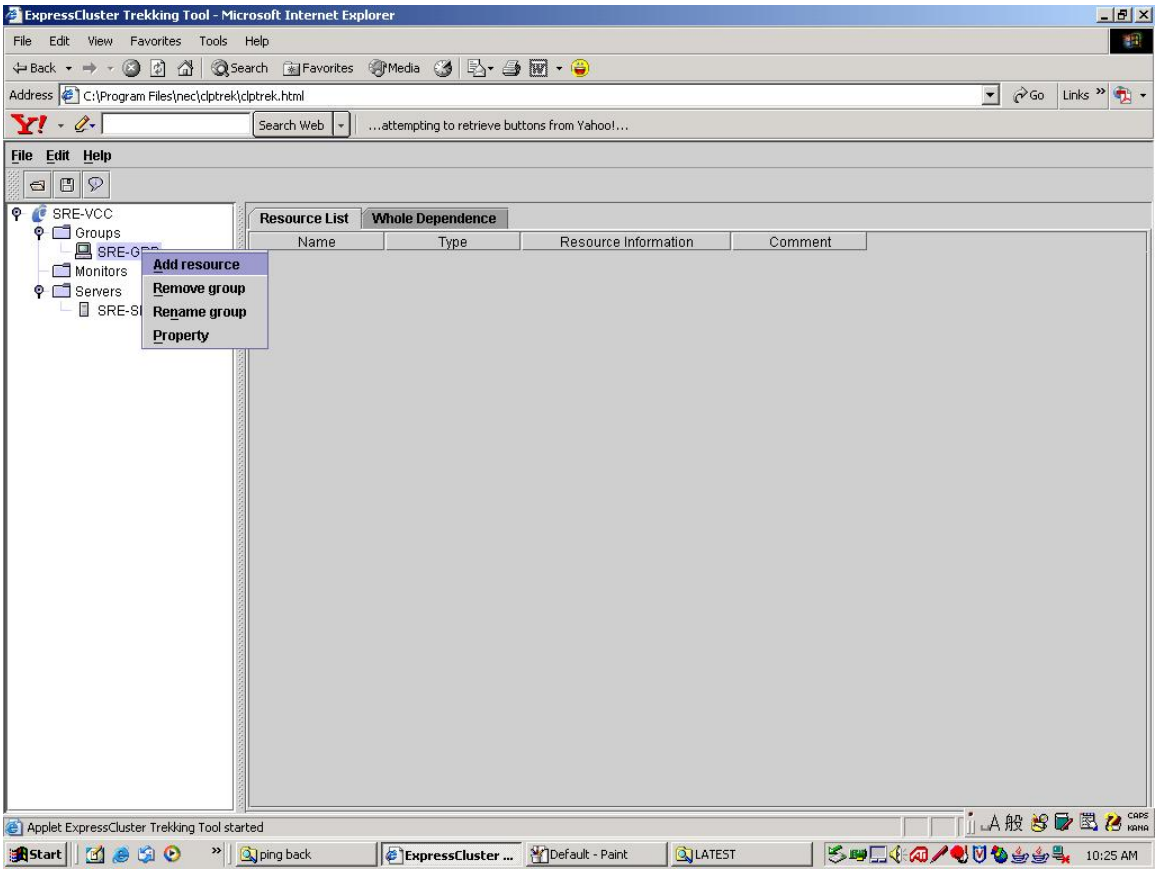


<For Linux>
Click *File -> Open the configuration file-> Change the cluster configuration* and navigate to /opt/nec/clptrek/etc/ and open clp.conf as below:

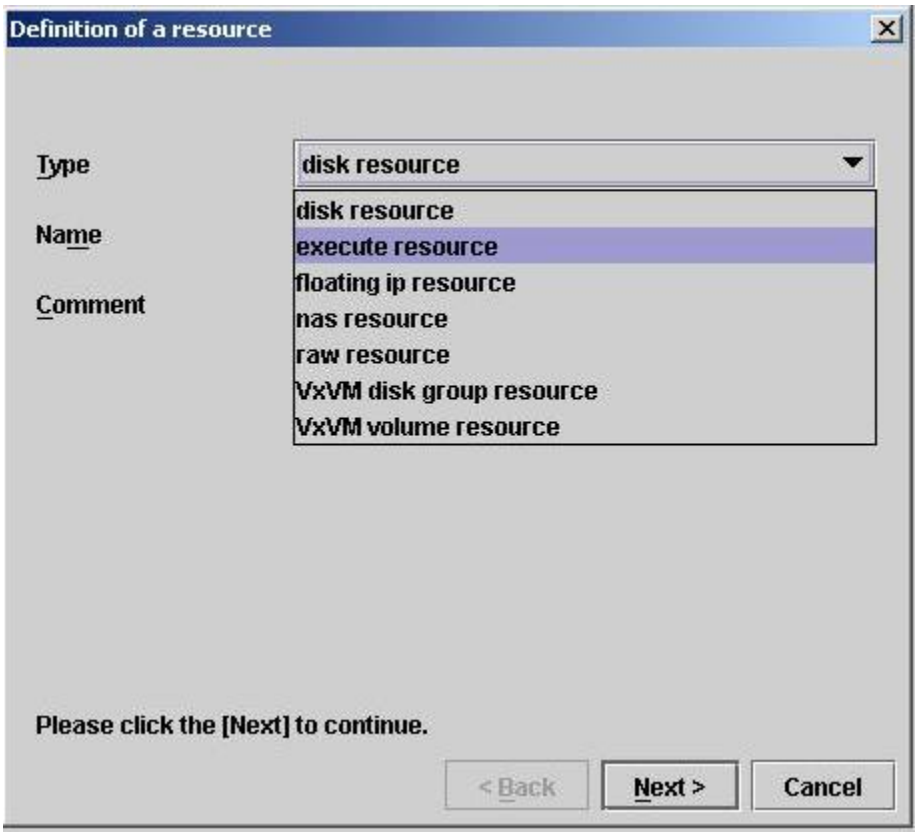
Step 3
The following screen will be displayed:



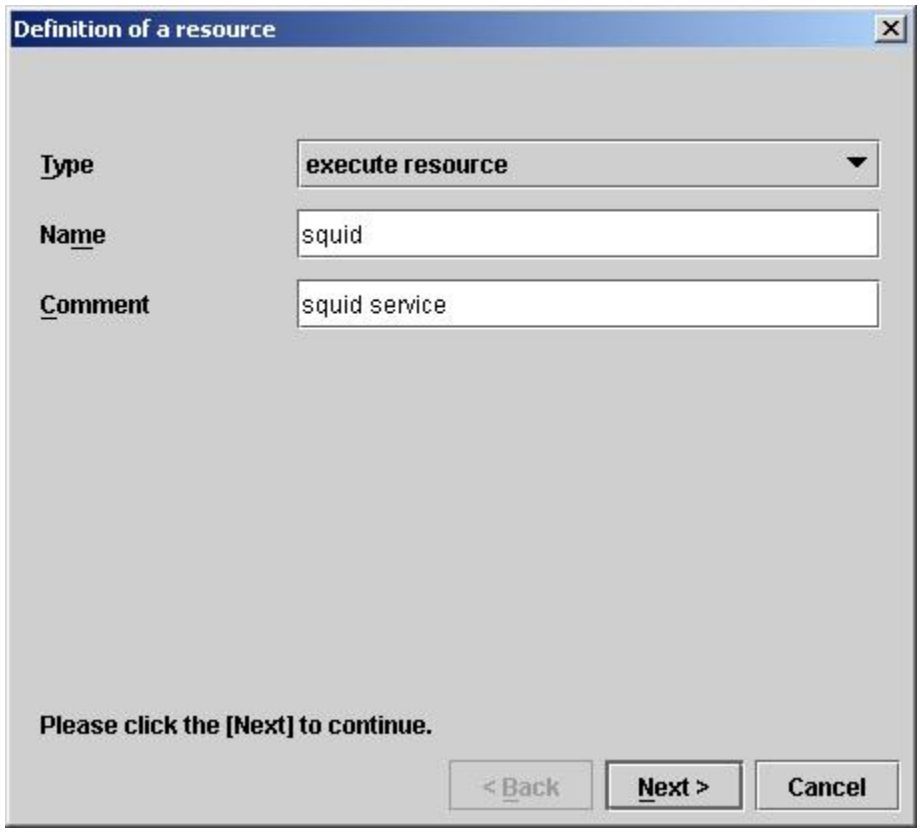
Step 4
Right click on SRE-GRP in the tree view and click *Add resource*



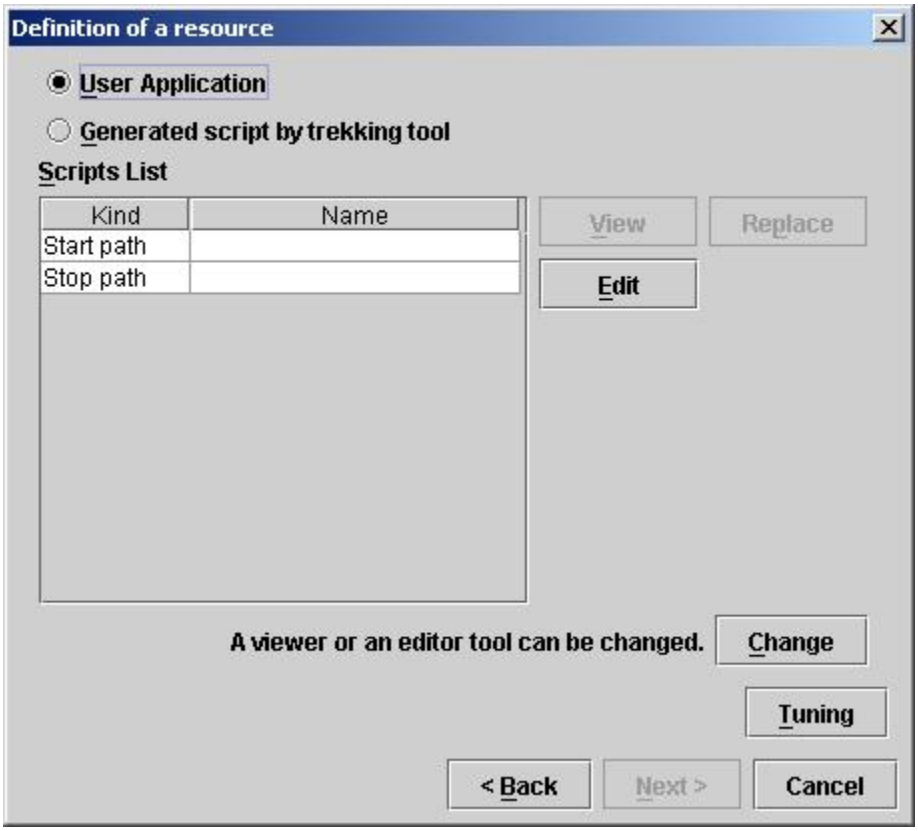
Step 5
Select *execute resource* from the list box as below:



Step 6
Change the name to *squid* and type in a comment as appropriate for your process:



Step 7
Select the *User Application* radio button and click *Edit* as below:

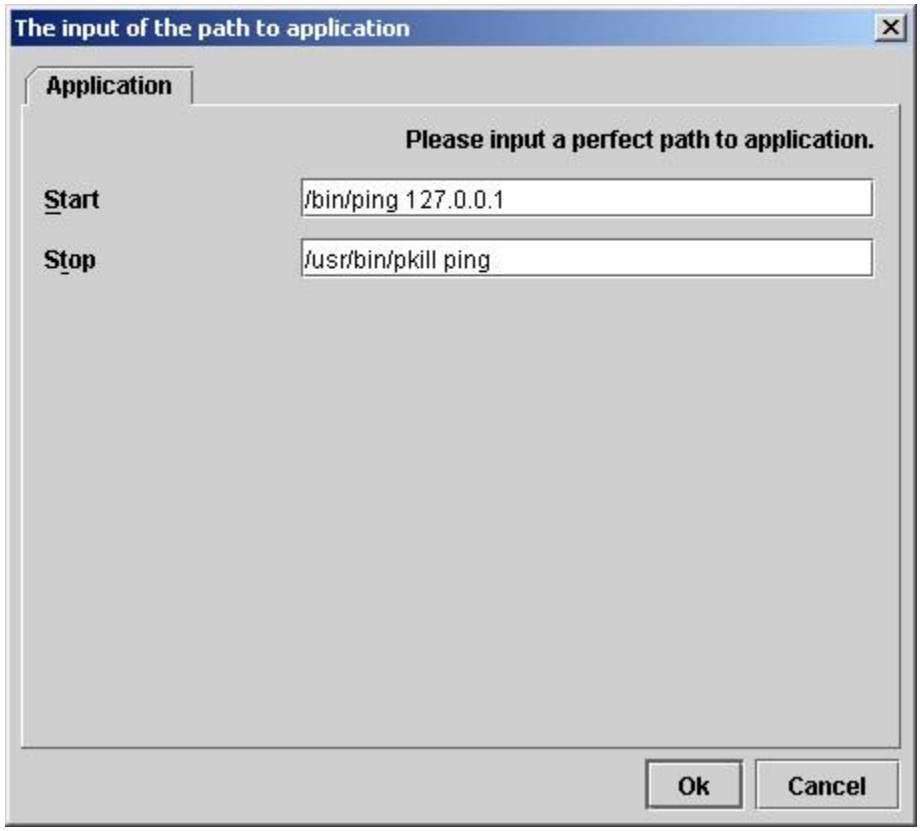


Step 8

<For processes that do not fork other child processes (e.g. "ping")>

In the Start edit box, enter the absolute path of the process (and start parameters if any) you would like to start.

In the Stop edit box, enter the absolute path of this process (and its stop parameters if any). Click *OK*.



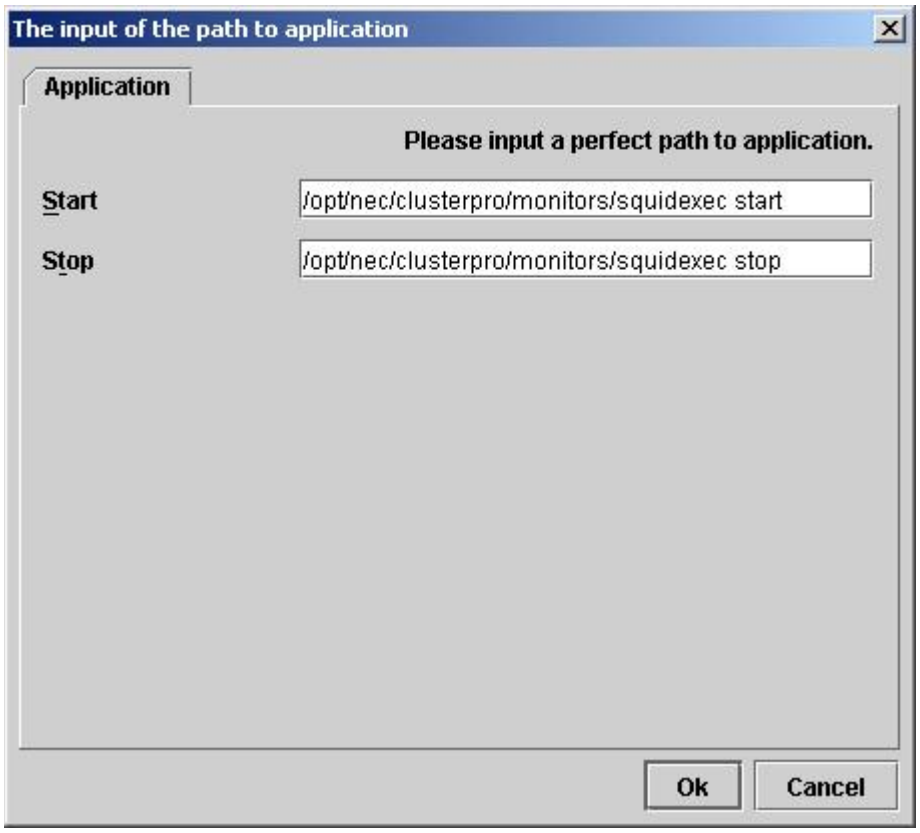
<For processes that fork other child processes (e.g. "squid")>

On the FT server, you could create a script that takes in command line arguments start and stop. This script should also have the logic of starting, stopping and monitoring the process by based on its Process ID ("pid"), and should terminate if the process terminates.

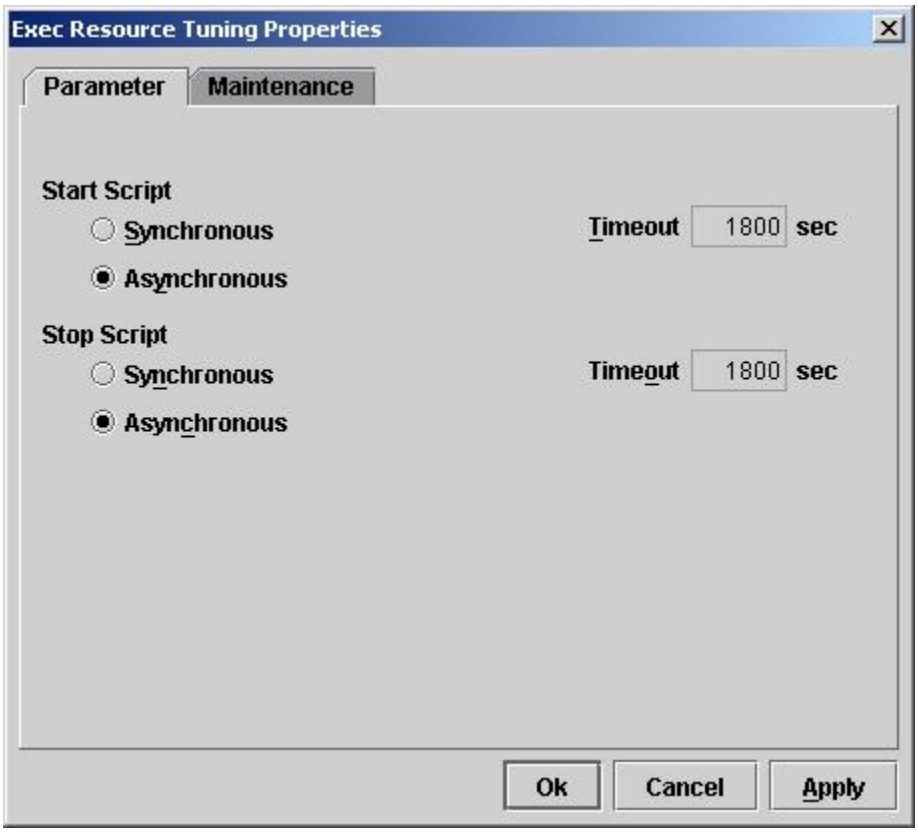
You could refer to this sample script (/opt/nec/clusterpro/monitors/squidexec) customized for the squid process:

```
#!/bin/bash
case "$1" in
start)
      /etc/init.d/squid start
      sleep 3
      processid=`cat /var/run/squid.pid 2> /dev/null &`
      while [ 1 ]
      do
            status=`ps --pid $processid --no-headers 2> /dev/null
            &`
            if [ "$status" != "" ]
            then
                  sleep 1
            else
                  exit 1
            fi
      done
;;
stop)
      /etc/init.d/squid stop
;;
esac
```

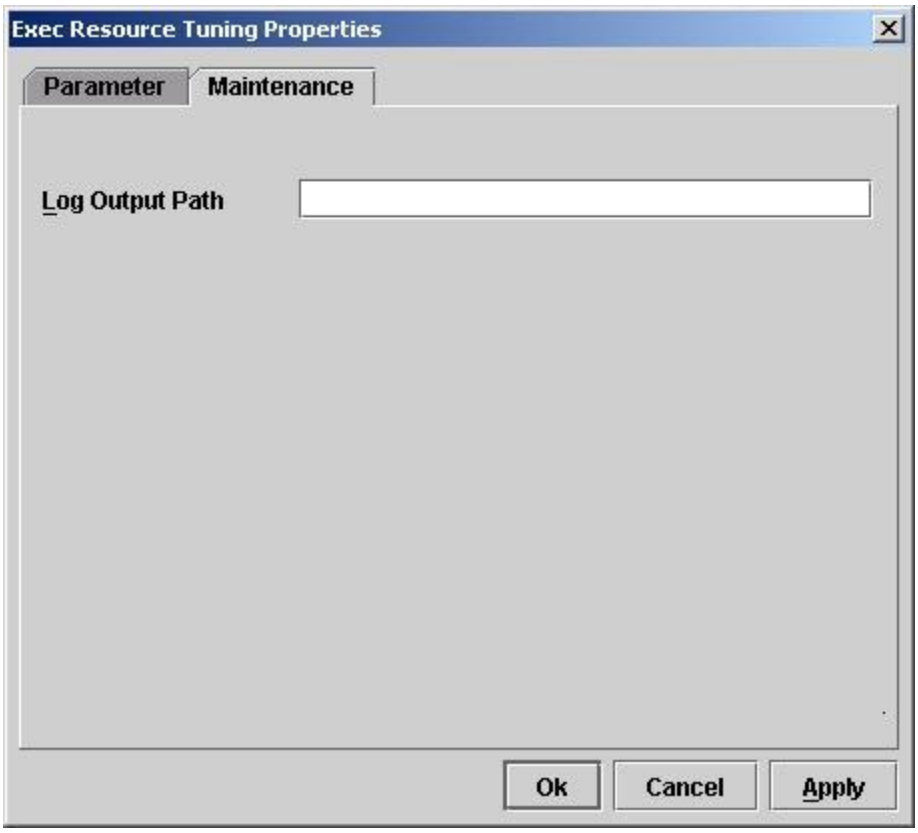
In the Start edit box, enter the absolute path of this script with its start parameters
In the Stop edit box, enter the absolute path of this script with its stop parameters Click *OK*.



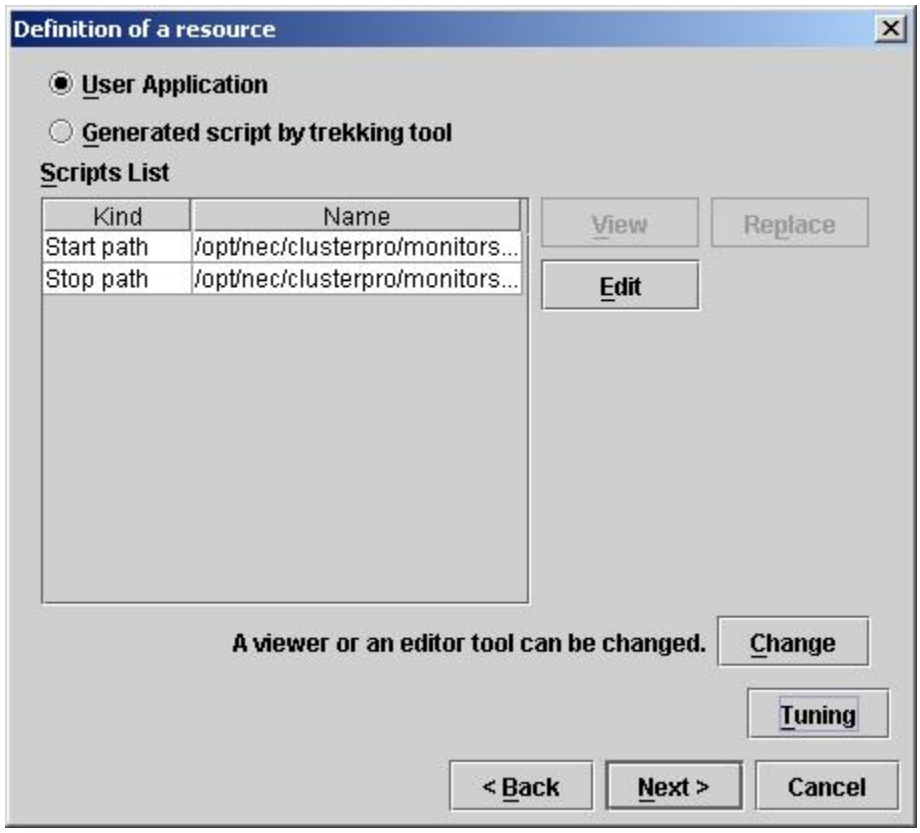
Step 9
Click the *Tuning* button. This takes you to the *Parameter* tab.
Asynchronous means ExpressCluster SRE will not wait for the completion of the start script execution. Always select *Asynchronous* here.



Step 10 (Optional)
In the Maintenance tab, you could specify the absolute path to a log file where standard output and standard error are redirected to. If this is left blank, standard output and standard error redirect to /dev/null. Click *OK* once you are done.



Step 11
Click *Next* > on the following screen:



Step 12
Activity Retry Threshold indicates the number of times ExpressCluster SRE will try to re-start the process, incase the process fails to startup the first time. When this threshold is crossed, the Final Action will be executed and the server would be rebooted. Set “3” here.

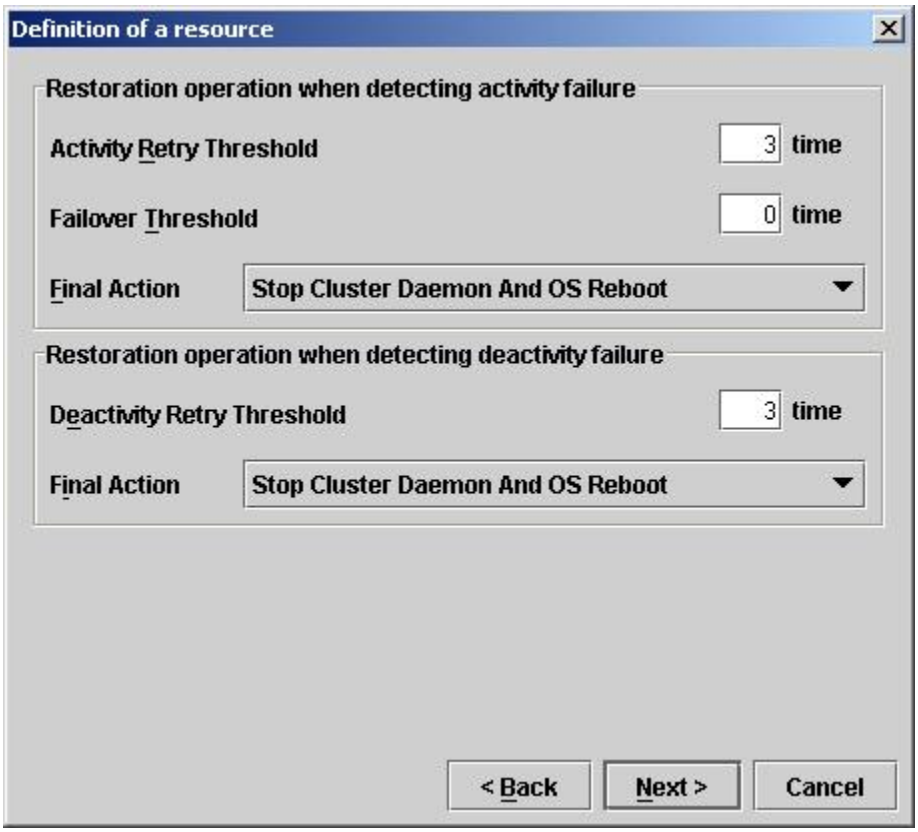
Set the *Failover Threshold* to “0”. (This should be 0 at all times; any other value is not applicable)

Select the *Final Action* as *Stop Cluster Daemon And OS Reboot* from the list box

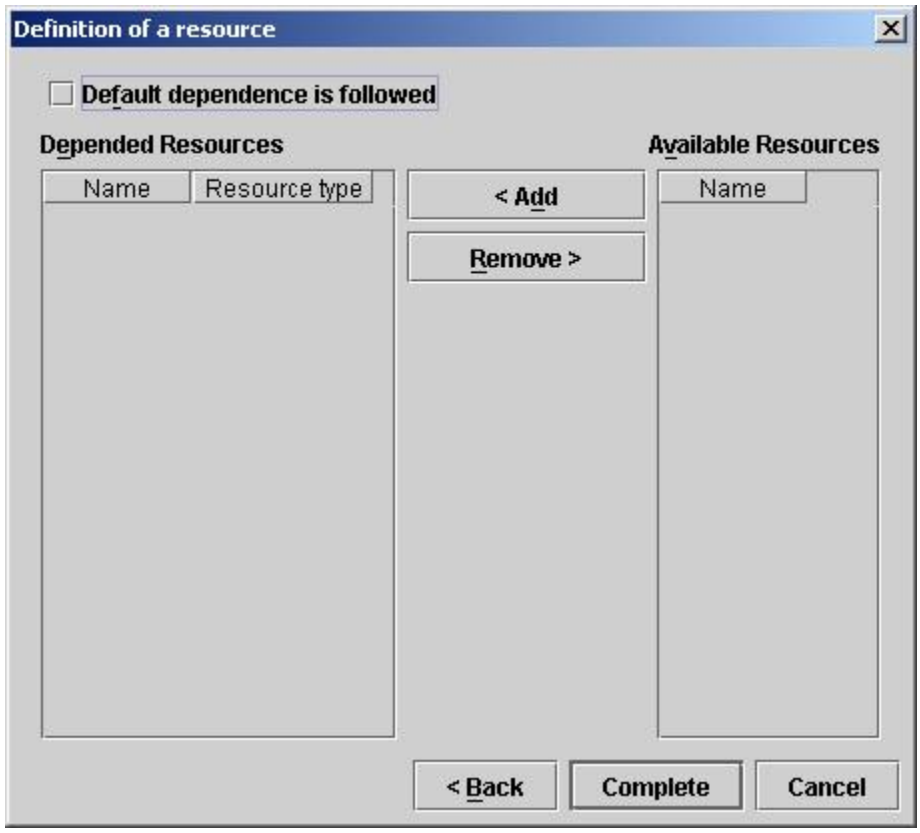
Deactivity Retry Threshold indicates the number of times ExpressCluster SRE will try to stop the process, incase the process fails to stop the first time. When this threshold is crossed, the Final Action will be executed and the server would be rebooted. Set “3” here.

Select the *Final Action* as *Stop Cluster Daemon And OS Reboot* from the list box

Click *Next* >.

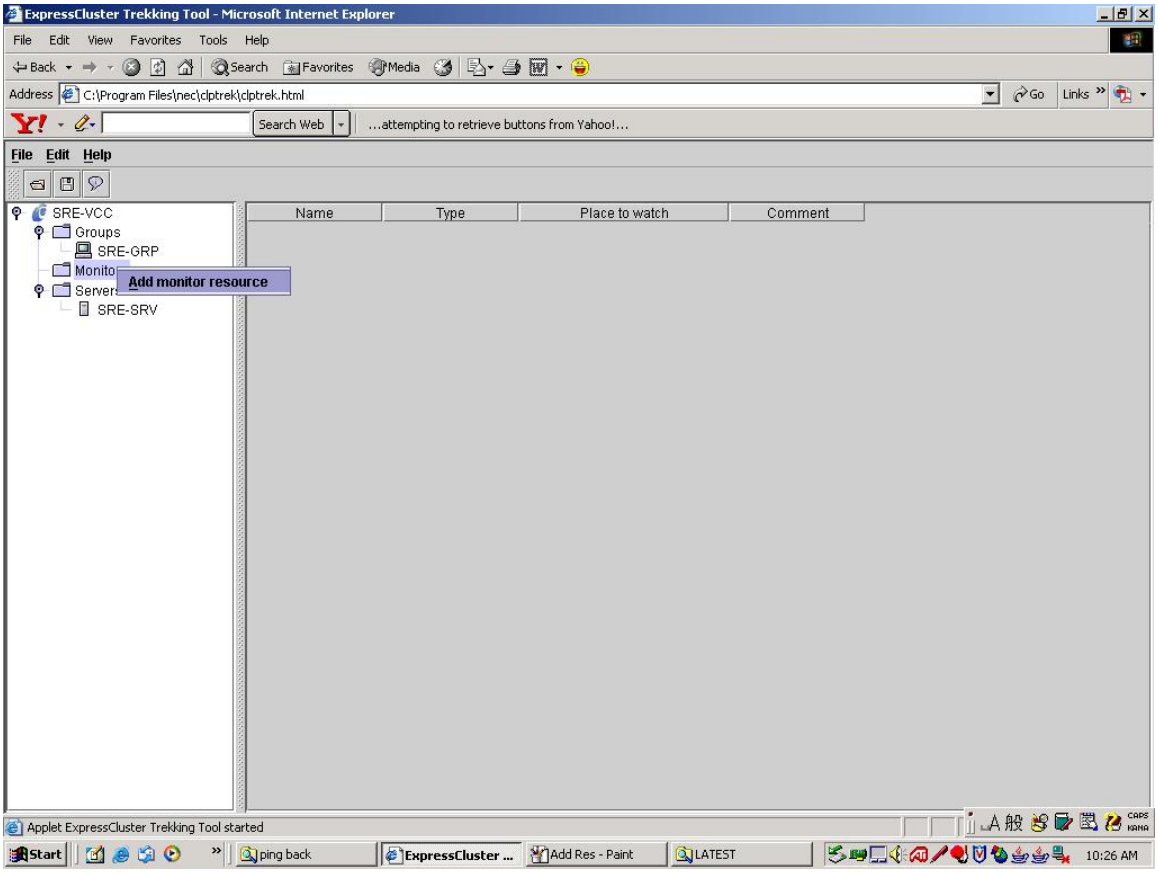


Step 13
Uncheck *Default dependence is followed* and click *Complete*

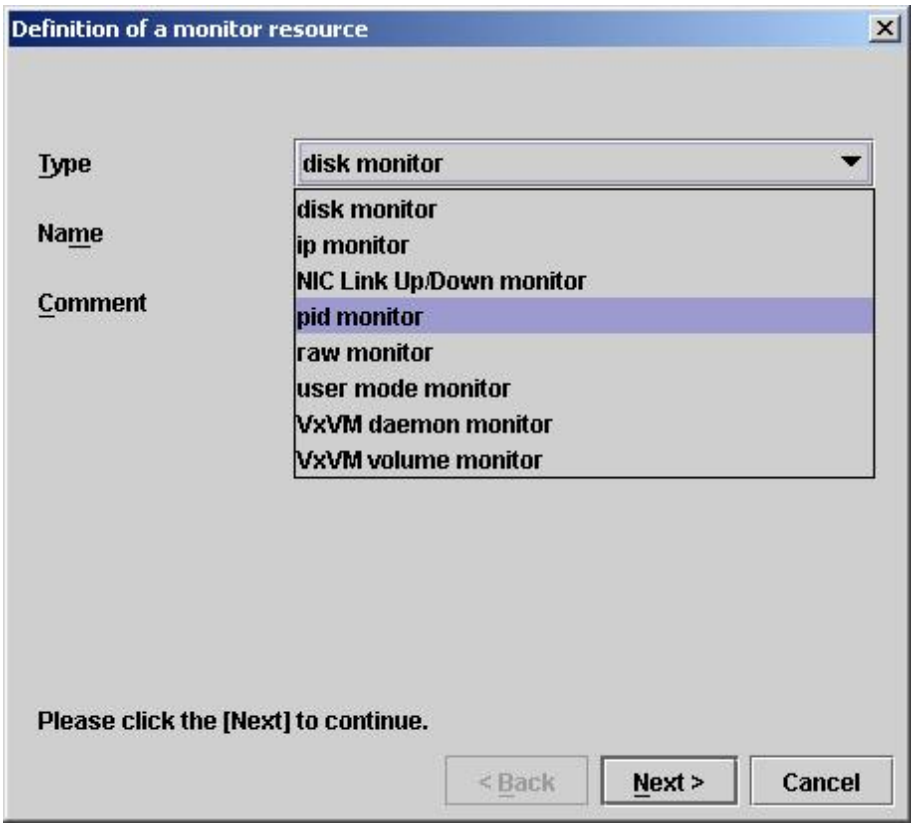


Creating the monitoring resource

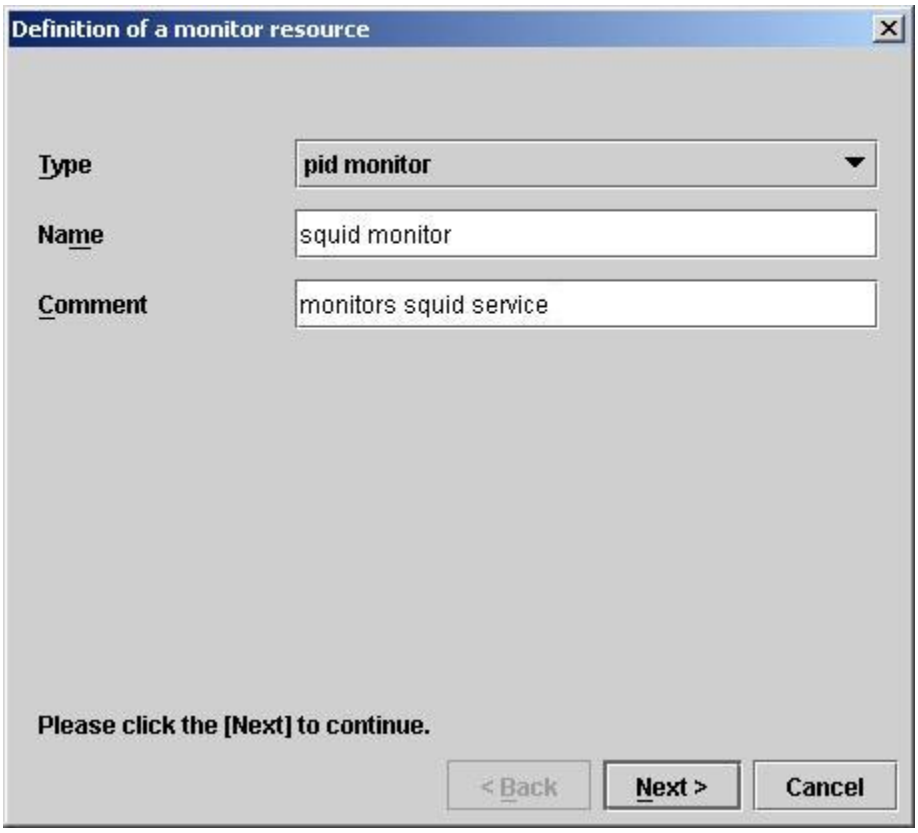
Step 1
Right Click on Monitors, and select *Add monitor resource*:



Step 2:
Select *pid monitor* from the list box shown:



Step 3
Change the Name to *squid monitor* and add a suitable comment and click *Next* >:



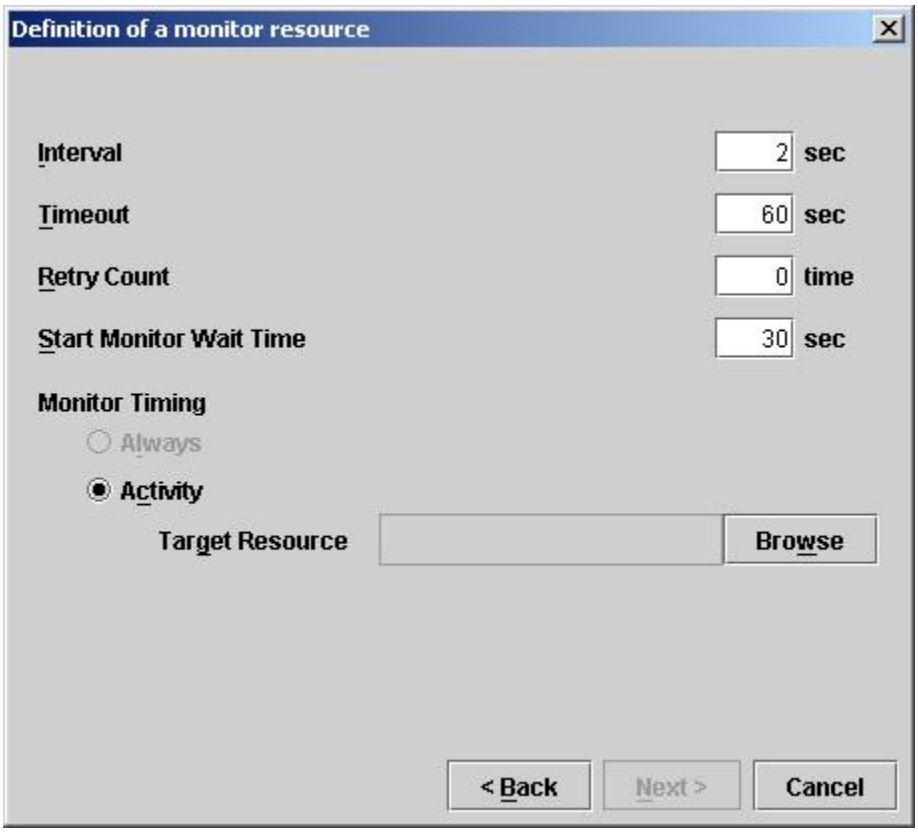
Step 4
Interval indicates the monitoring interval in seconds. Set this to 2.

Timeout indicates the timeout value within which the status of the process should be normal. If this exceeded, ExpressCluster SRE will consider it abnormal. Set this to 60.

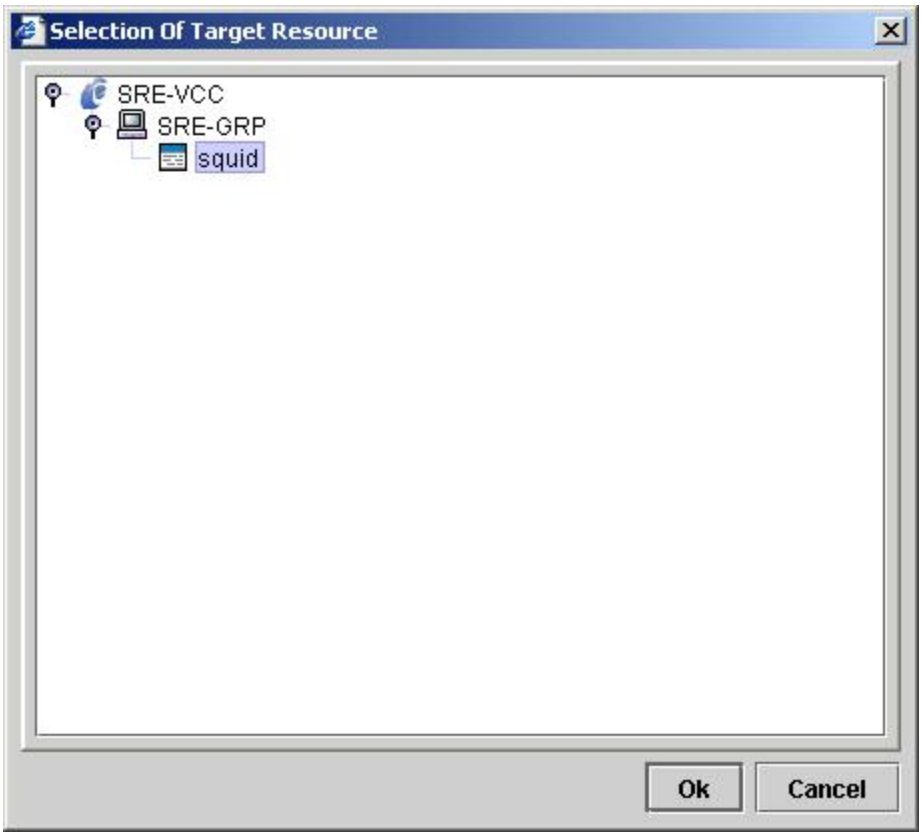
Retry Count indicates the number of times abnormality should be detected consecutively, before the status of the resource is considered abnormal. Set this to 0.

Start Monitor Wait Time is the monitoring interval time in seconds. ExpressCluster SRE will wait for this much time before it starts monitoring the resource. This time is generally the time required for the processes to start up. Set this to 30 seconds. (If your process takes more than 30 seconds to start up, set this accordingly).

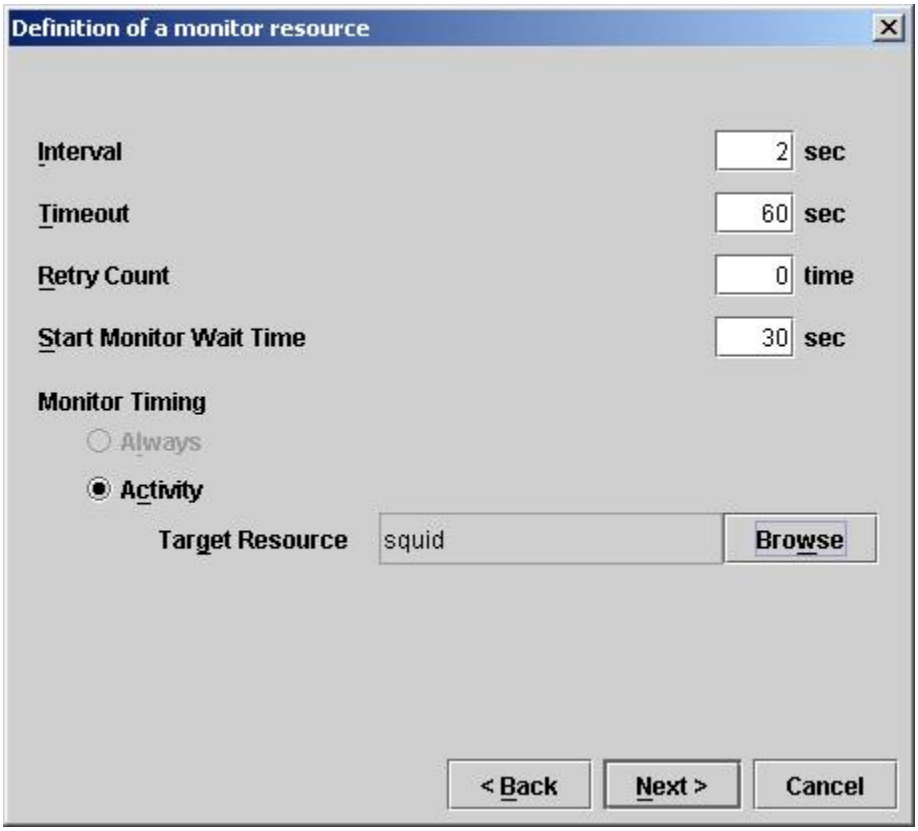
Monitor Timing indicates *Activity* for execute resources by default. This means that the resource monitoring starts just after the group is started.
Click the *Browse* button to browse to the target resource to be monitored. (In this case *squid*).



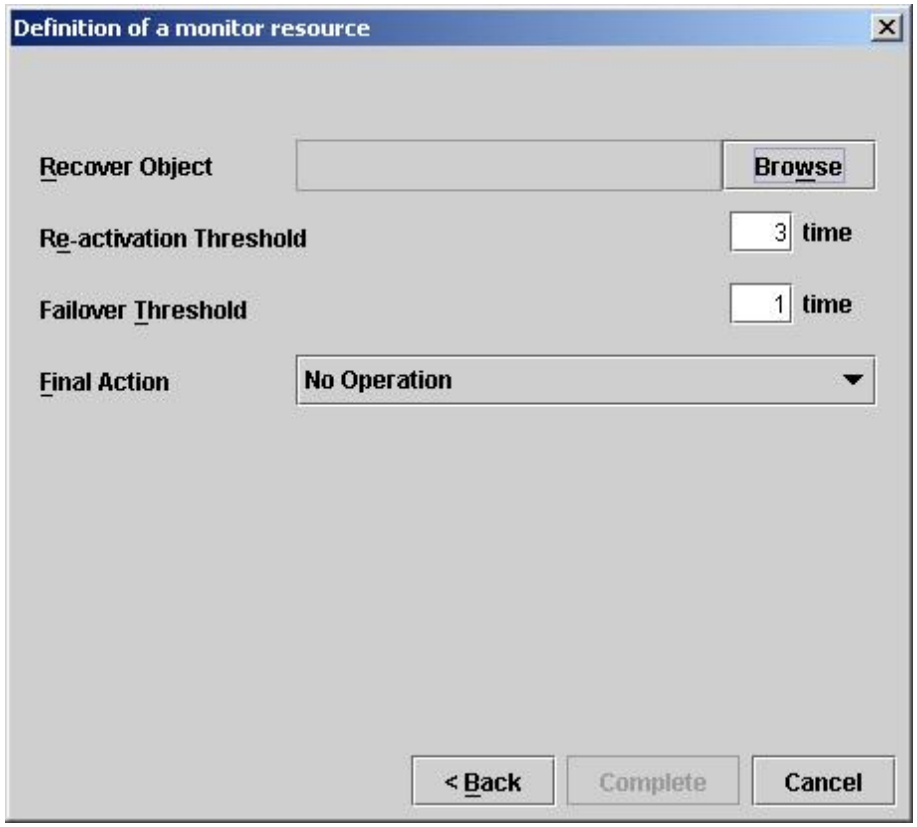
Step 5
Select *squid* and click *Ok. (squid* would be the target resource you created – in this case ping)



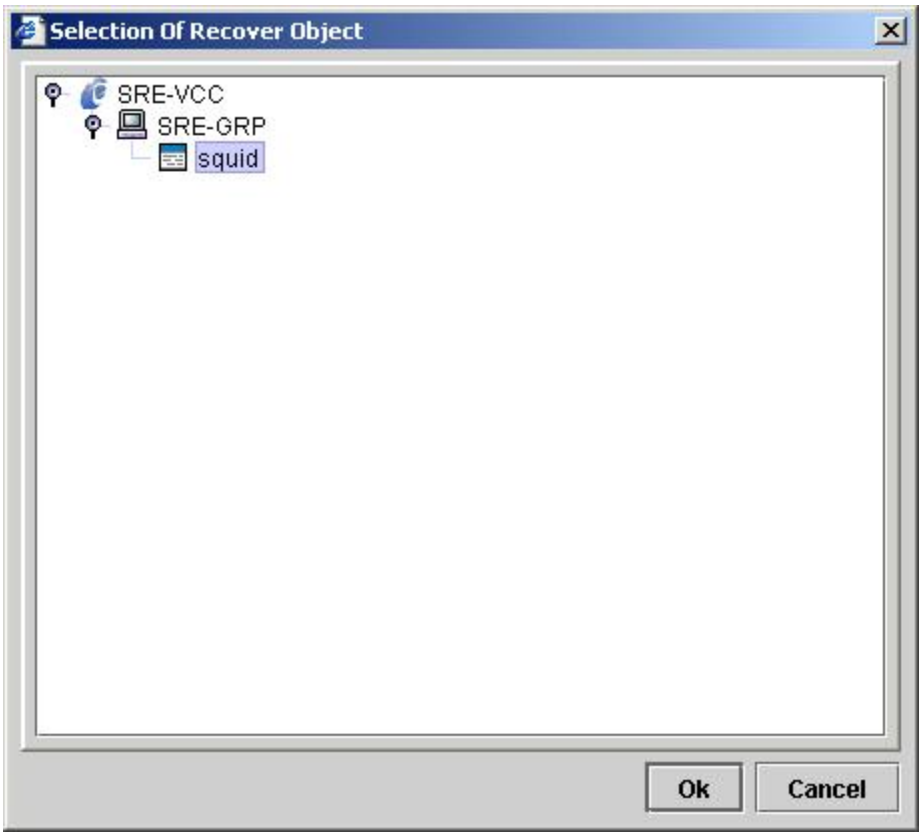
Step 6
Click *Next >*



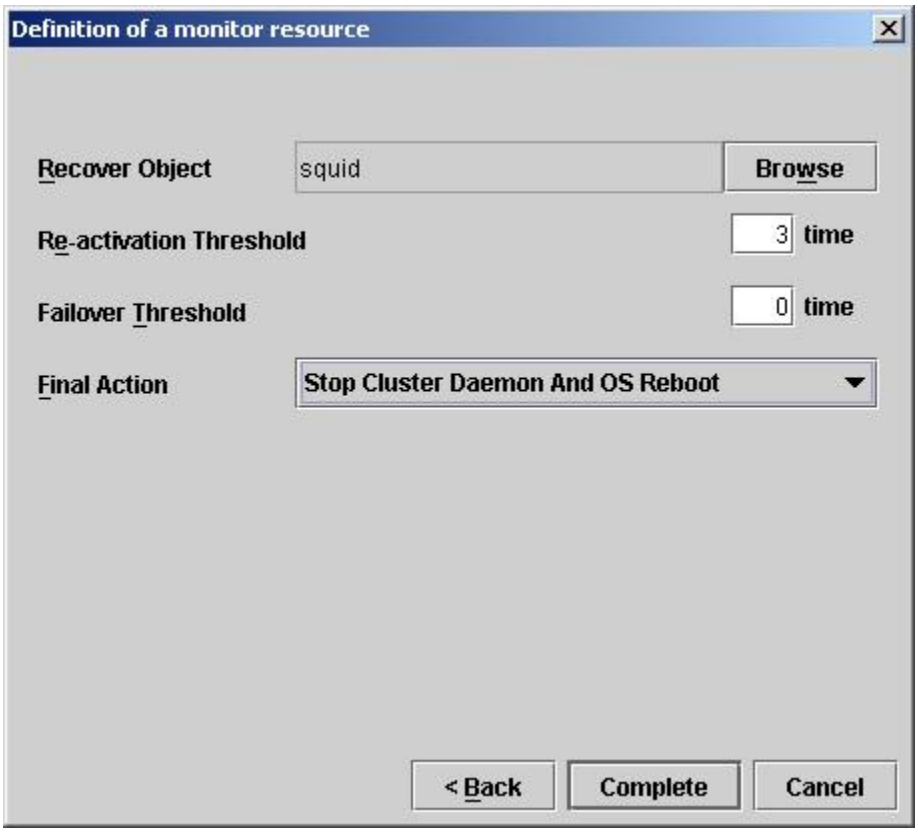
Step 7
Recover Object is the object you want to recover. Click Browse below:



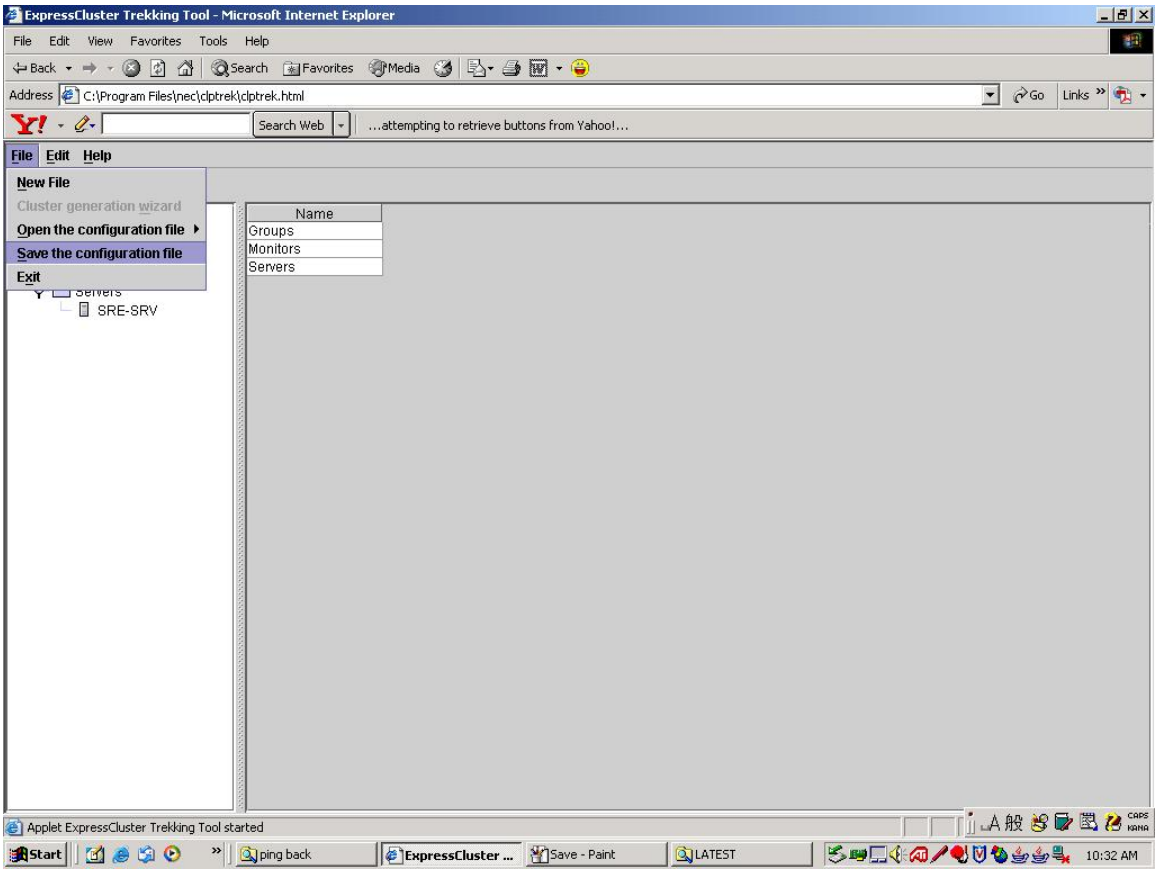
Step 8
Select the *squid* resource here to recover *squid*. This means that ExpressCluster SRE will try to restart *squid* as part of recovery. Click *OK*.



Step 9
Reactivation Threshold indicates the maximum number of times the recovery action will be executed. Set this to 3.
Set the *Failover Threshold* to 0 as this is not applicable here for a single server.
If *Reactivation Threshold* is crossed, the *Final Action* is executed. Select *Stop Cluster Daemon And OS Reboot* for the Final Action and click *Complete*.

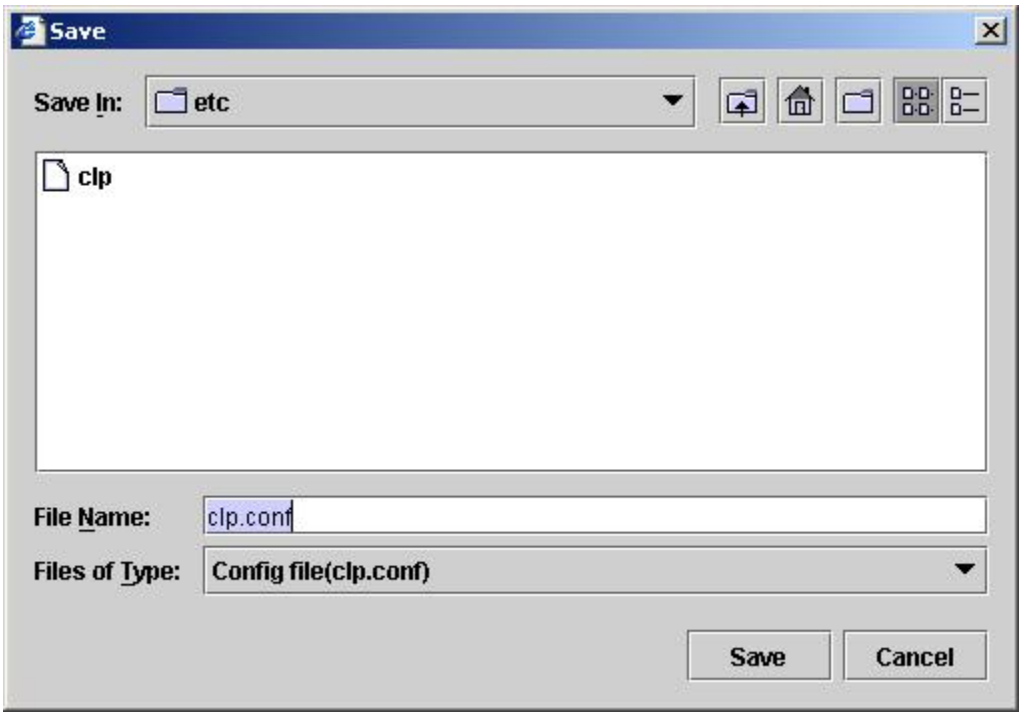


Step 10
Select *File -> Save the configuration file*:

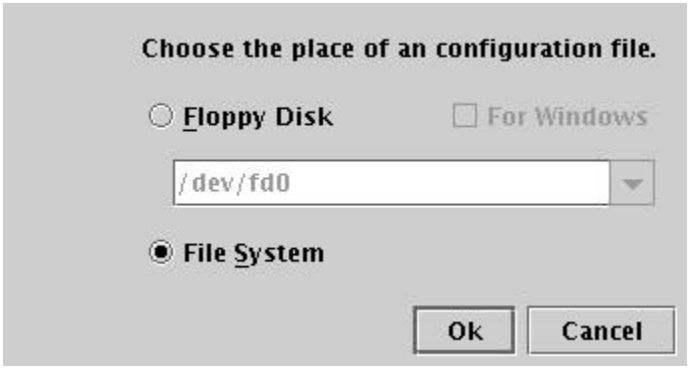


Step 11

<For Windows>
Select *clp.conf* and click *Save*:



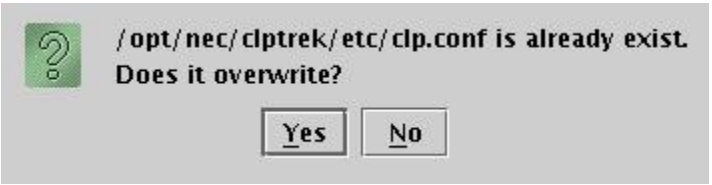
<For Linux>
Select *File System* and Click *OK* on the following screen



Select *clp.conf* and click *Save*:

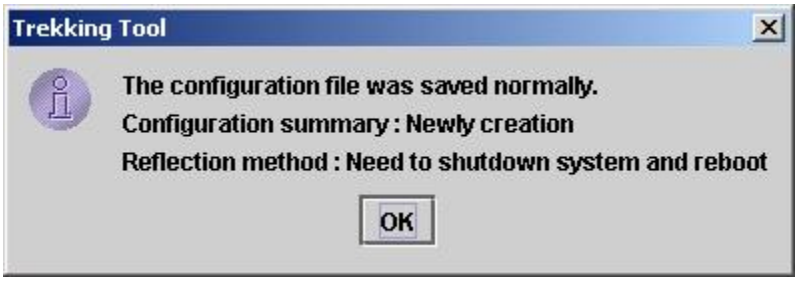
Step 12
<For Windows>
Click *Yes* on the following screen:

<For Linux>
Click *Yes* on the following screen:



Step 13
Note:
You do not need to reboot the server at this time.

Please ignore this dialog below and click *OK*:


Trekking Tool
The configuration file was saved normally.
Configuration summary : Newly creation
Reflection method : Need to shutdown system and reboot
OK

This completes the creation and configuration of the required resources.

Configuration Distribution

Pre-requisites:
1. Ensure that the process you are trying to monitor is not already running. If it is running, please stop it. Also for processes that startup when the OS reboot, please disable the automatic startup of the process at boot time using the command:

   ```
   chkconfig --del <service name>
   ```

   e.g for squid it is ***chkconfig --del squid***

2. Please ensure that the ftp daemon is started on the FT-Linux server. If not, please refer to Appendix E: Starting the ftp daemon to start the wu-ftpd daemon on the server.

Note:
Steps 1 through 3 needs to be executed just one time.

Step 1
Add a user “sreadmin” using the command:

```
adduser sreadmin
```

Step 2
Set the password for “sreadmin” as “sreadmin” with the command:

```
passwd sreadmin
```

When prompted for the new password type in “sreadmin”

Step 3
Create a directory called scripts in the /home/sreadmin folder using the following commands:

```
cd /home/sreadmin
mkdir scripts
```

Step 4

<*Windows*>
From the client computer start the command prompt (*Start->Run->cmd*) and type in the following:

```
cd C:\Program Files\nec\clptrek\etc\
```

<*Linux*>
From the client computer type in:

```
cd /opt/nec/clptrek/etc/
```

Step 5
Connect to the server using ftp <IP address> with the user name as “sreadmin” and password “sreadmin”

e.g. **ftp 10.123.187.1**

Note:
If you encounter the error: “ftp: connect : Connection refused” you missed the pre-requisite stated above. Please refer to ***Appendix E: Starting the ftp daemon*** *to start the wu-ftpd daemon on the server, and repeat Step 5.*

Step 6

```
ftp> mput clp.conf
```

Step 7
Quit out of ftp typing in bye:

```
ftp> bye
```

Step 8
On the FT-Linux server, execute the following command:

```
/opt/nec/clusterpro/management/sre-push
```

Hit Return when prompted as below:

```
…
…
Need to shutdown system and reboot
please shutdown system after push. (hit return) : <HIT RETURN HERE>
file delivery to server 127.0.0.1 success.
…
…
```

Note:
You do not need to reboot the server at this time

Step 9
You can verify the status of the cluster using

```
clpstat –s
```

Step 10
You can verify that the squid daemon has started using the command:

```
service squid status
```

The output will be similar to:

```
squid (pid 30750 30748) is running...
```

If squid is terminated, it is automatically restarted. If it is terminated “4” times (which is more than the threshold set as “3”) within “4 X 30 = 120” seconds, the server is rebooted automatically.

Appendix A: Changing the Computer Name

Please execute ***Step 1*** before changing the computer name:

Step 1
Run the following command to suspend the cluster:

```
/opt/nec/clusterpro/management/sre-suspend
```

Please go ahead and change the computer name now. After changing the computer name, please execute ***Steps 2 through 6***.

Step 2
Open the file /opt/nec/clusterpro/etc/clp.conf using the “vi” editor

Step 3:
Look for the following line and change the computer name to the new name (say “XXX”). Please retain the quotations before and after the computer name.

```
....
....
<server name="XXX">
....
....
```

Step 4:
Look for ***all the entries*** of the following line and change the computer name to the new name (say “XXX”). Please retain the quotations before and after the computer name.

```
....
....
<policy name="XXX">
....
....
```

Step 5:
Save the file and quit the “vi” editor.

Step 6:
Run the following command to resume the cluster:

```
/opt/nec/clusterpro/management/sre-resume
```

Appendix B: Assigning an IP address

The following steps team the 10/100 (100 Base) Ethernet adapters and assign an IP address to it.

Note:

1. *If you want to team the 1000 Base Ethernet adapters and assign an IP address to it replace "7" by "4" for all steps below.*
2. *It is mandatory for ExpressCluster SRE that this IP address is* ***static.***
3. *Steps below assign the following* ***static*** *IP address as an example:*
   IP: 10.123.187.1 Mask: 255.255.255.0

   Please set an appropriate ***static*** *IP address according to your environment.*

Step 1
Login as "root" with the password set for the "root" user.

Step 2
Execute the following command to check if the indication of the LAN card appears on the slot 7:

```
vndctl status
```

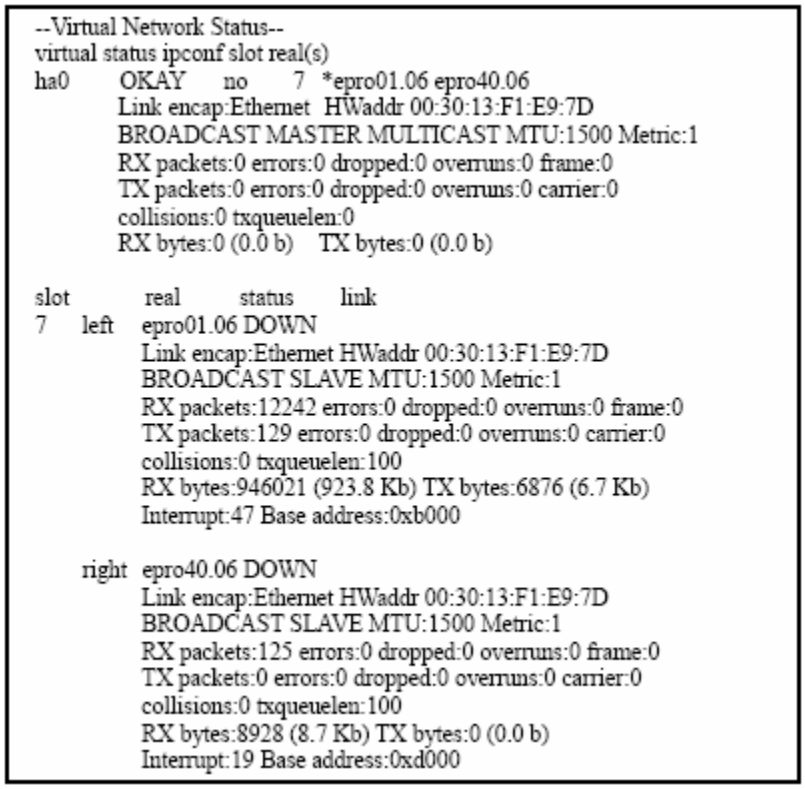
```
-Virtual Network Status-
virtual status ipconf slot real(s)

slot      real      status   link
1   left    -
    right   -
2   left    -
    right   -
3   left    -
    right   -
4   left    gb01.03.0 -
    right   gb40.03.0 -
5   left    -
    right   -
6   left    -
    right   -
7   left    epro01.06
    right   epro40.06
```

Step 3
Execute the following command to add the LAN card of the slot 7 to the VND list:

```
vndctl add 7
```

Step 4
Use the following command to check the status of LAN card:

```
vndctl status 7
```


--Virtual Network Status--
virtual status ipconf slot real(s)
ha0 OKAY no 7 *epro01.06 epro40.06
Link encap:Ethernet HWaddr 00:30:13:F1:E9:7D
BROADCAST MASTER MULTICAST MTU:1500 Metric:1
RX packets:0 errors:0 dropped:0 overruns:0 frame:0
TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:0
RX bytes:0 (0.0 b) TX bytes:0 (0.0 b)
slot real status link
7 left epro01.06 DOWN
Link encap:Ethernet HWaddr 00:30:13:F1:E9:7D
BROADCAST SLAVE MTU:1500 Metric:1
RX packets:12242 errors:0 dropped:0 overruns:0 frame:0
TX packets:129 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:100
RX bytes:946021 (923.8 Kb) TX bytes:6876 (6.7 Kb)
Interrupt:47 Base address:0xb000
right epro40.06 DOWN
Link encap:Ethernet HWaddr 00:30:13:F1:E9:7D
BROADCAST SLAVE MTU:1500 Metric:1
RX packets:125 errors:0 dropped:0 overruns:0 frame:0
TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:100
RX bytes:8928 (8.7 Kb) TX bytes:0 (0.0 b)
Interrupt:19 Base address:0xd000

"ha0" indicates the interface name (ha0) which is used to set dual configuration to the two LAN cards and then virtually treats them as one LAN card.

Step 5
Use the following command to set the IP address:

```
vndctl config 7
```

Step 6
The screen will be switched to the entry screen. (netconfig command is being executed.)
The message "Would you like to set up networking?" will appear. Click "Yes" to continue.

Note:
Do not select DHCP here.

Set the IP address, Subnet Mask, Default Gateway IP and the Primary Name Server as per your Network environment.

Step 7
Use the following command to activate the dual LAN card configuration of the slot 7:

```
vndctl up 7
```

Step 8
Check the status using:

```
vndctl status
```

```
-Virtual Network Status-
virtual status ipconf slot real(s)
ha0    OKAY    yes    7    *epro01.06 epro40.06

slot       real       status   link
1    left     -
     right    -
2    left     -
     right    -
3    left     -
     right    -
4    left     gb01.03.0 -
     right    gb40.03.0 -
5    left     -
     right    -
6    left     -
     right    -
7    left     epro01.06 UP   LINK
     right    epro40.06 UP   LINK
```

Dual LAN card configuration has completed when the screen displays the status as “UP”, and the link is “LINK” (with LAN cable connected) as shown above.

Step 9
Execute the following command to check whether IP address is set correctly:

```
vndctl ipconf 7
```

```
DEVICE=ha0
ONBOOT=yes
BOOTPRONTO=static
IPADDR=10.123.187.1
NETMASK=255.255.255.0
GATEWAY=10.123.187.254
```

This completes the steps to assign the IP address to the Dual 10/100 (100 Base) Ethernet adapter.

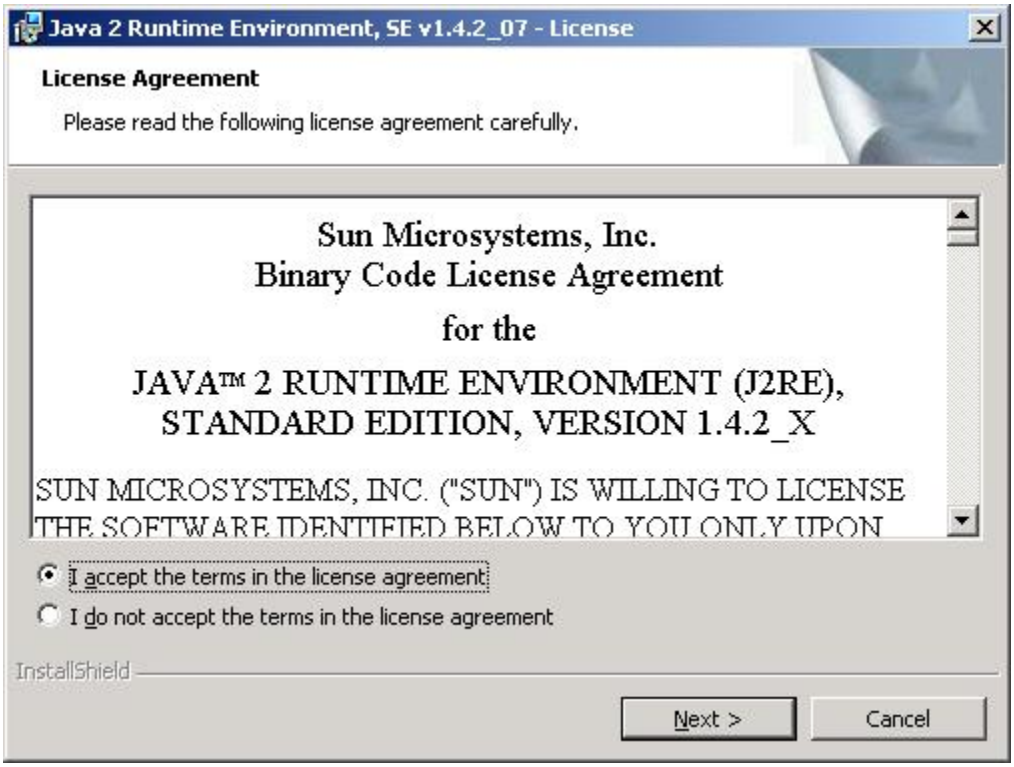
Appendix C: Installing JRE

Windows

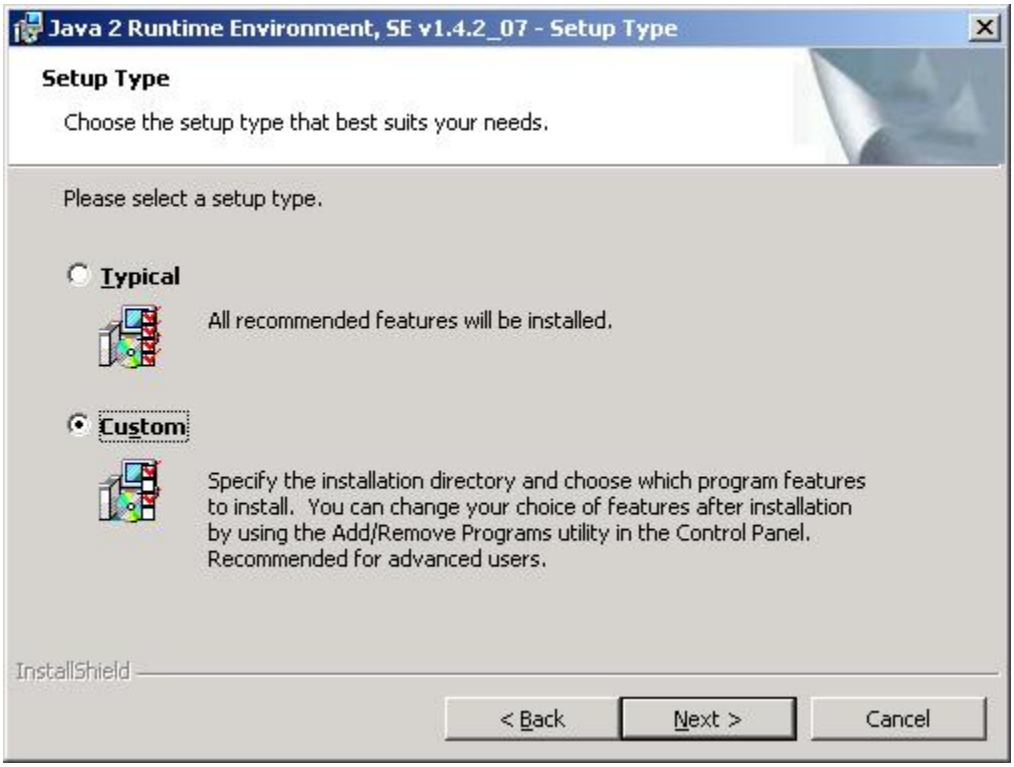
You can install it from the EC SRE – FT Linux CDROM from the following directory: `<CD>\tools`

Step 1
Double click the `j2re-1_4_2_07-windows-i586-p.exe` installable from the following directory: `<CD>\tools`

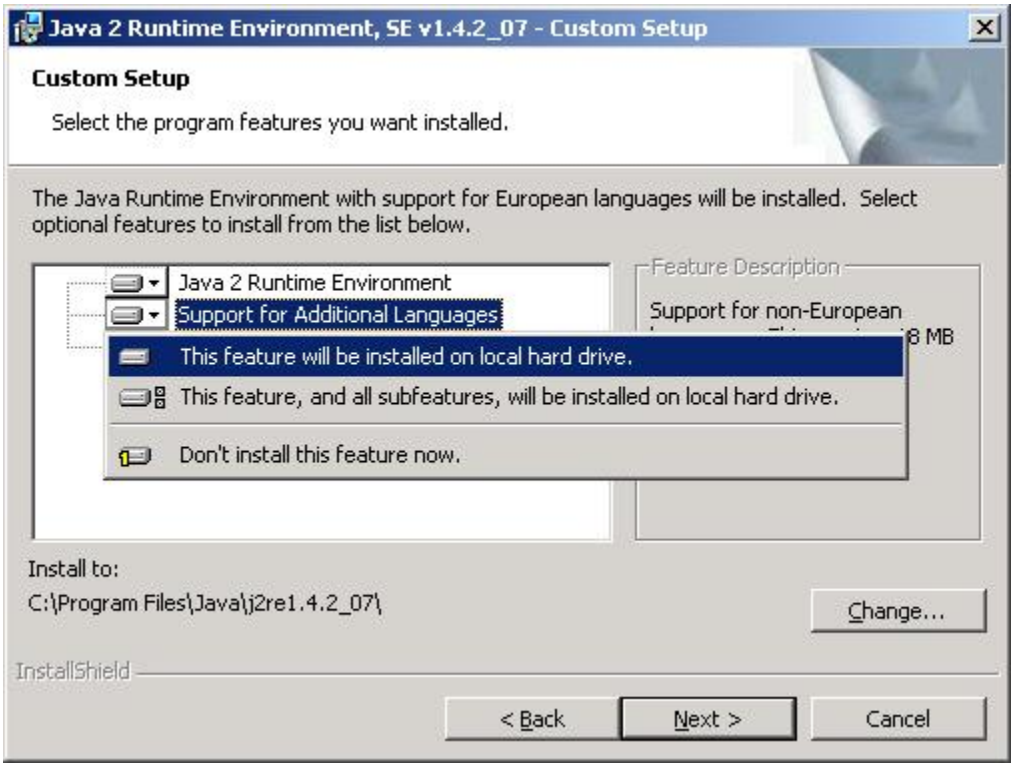
Step 2
Select *I accept the terms in the license agreement* and click *Next >*


Java 2 Runtime Environment, SE v1.4.2_07 - License
License Agreement
Please read the following license agreement carefully.
Sun Microsystems, Inc.
Binary Code License Agreement
for the
JAVA™ 2 RUNTIME ENVIRONMENT (J2RE),
STANDARD EDITION, VERSION 1.4.2_X
SUN MICROSYSTEMS, INC. ("SUN") IS WILLING TO LICENSE
THE SOFTWARE IDENTIFIED BELOW TO YOU ONLY UPON
I accept the terms in the license agreement
I do not accept the terms in the license agreement
InstallShield
Next >
Cancel

Step 3
Select *Custom* and click *Next*


Java 2 Runtime Environment, SE v1.4.2_07 - Setup Type
Setup Type
Choose the setup type that best suits your needs.
Please select a setup type.
Typical
All recommended features will be installed.
Custom
Specify the installation directory and choose which program features to install. You can change your choice of features after installation by using the Add/Remove Programs utility in the Control Panel. Recommended for advanced users.
InstallShield
< Back
Next >
Cancel

Step 4
In addition to the *Java 2 Runtime Environment*, also select the *Support for Additional Languages* as shown below and click *Next >*

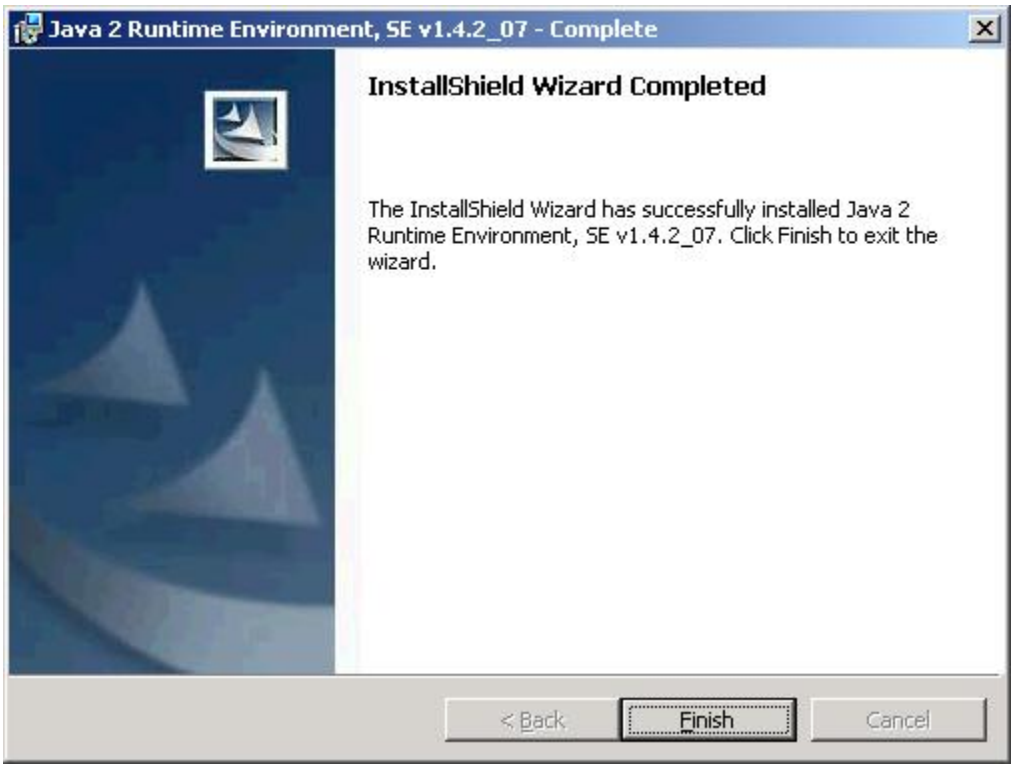

Java 2 Runtime Environment, SE v1.4.2_07 - Custom Setup
Custom Setup
Select the program features you want installed.
The Java Runtime Environment with support for European languages will be installed. Select optional features to install from the list below.
Java 2 Runtime Environment
Support for Additional Languages
Feature Description
Support for non-European
8 MB
This feature will be installed on local hard drive.
This feature, and all subfeatures, will be installed on local hard drive.
Don't install this feature now.
Install to:
C:\Program Files\Java\j2re1.4.2_07\
Change...
InstallShield
< Back
Next >
Cancel

Note:
The Support for Additional Languages is required because the Customization Tool uses shift-JIS character encoding on the Windows Platform.

Step 5
Select *Microsoft Internet Explorer* and click *Next >*

Java 2 Runtime Environment, SE v1.4.2_07 - Browser Registration
Browser Registration
Select the browsers you want to register with Java(TM) Plug-In.
Microsoft Internet Explorer
You may change the settings later in the Java(TM) Plug-In Control Panel.
InstallShield
< Back
Next >
Cancel

Step 6
Click *Finish* on the following screen:


Java 2 Runtime Environment, SE v1.4.2_07 - Complete
InstallShield Wizard Completed
The InstallShield Wizard has successfully installed Java 2 Runtime Environment, SE v1.4.2_07. Click Finish to exit the wizard.
< Back
Finish
Cancel

This completes the installation of JRE on Windows.

Linux

Step 1
Login is “root” with the set password for the “root” user
Type in the following:

```
cd /
```

Step 2
Insert the installation CD in the CDROM drive and mount the CD as read only using:

```
mount –o ro /dev/cdrom /mnt
```

Step 3
Type in the following:

```
/mnt/tools/j2re-1_4_2_07-linux-i586-rpm.bin
```

Step 4
The script displays a binary license agreement, which you are asked to agree to before installation can proceed. Once you have agreed to the license, the install script creates the file j2re-1_4_2_07-linux-i586.rpm in the current directory “/”.

Step 5
Run the rpm from the “/” directory:

```
rpm –iv j2re-1_4_2_07-linux-i586.rpm
```

This completes the installation of JRE on Linux

Appendix D: Modifying JRE

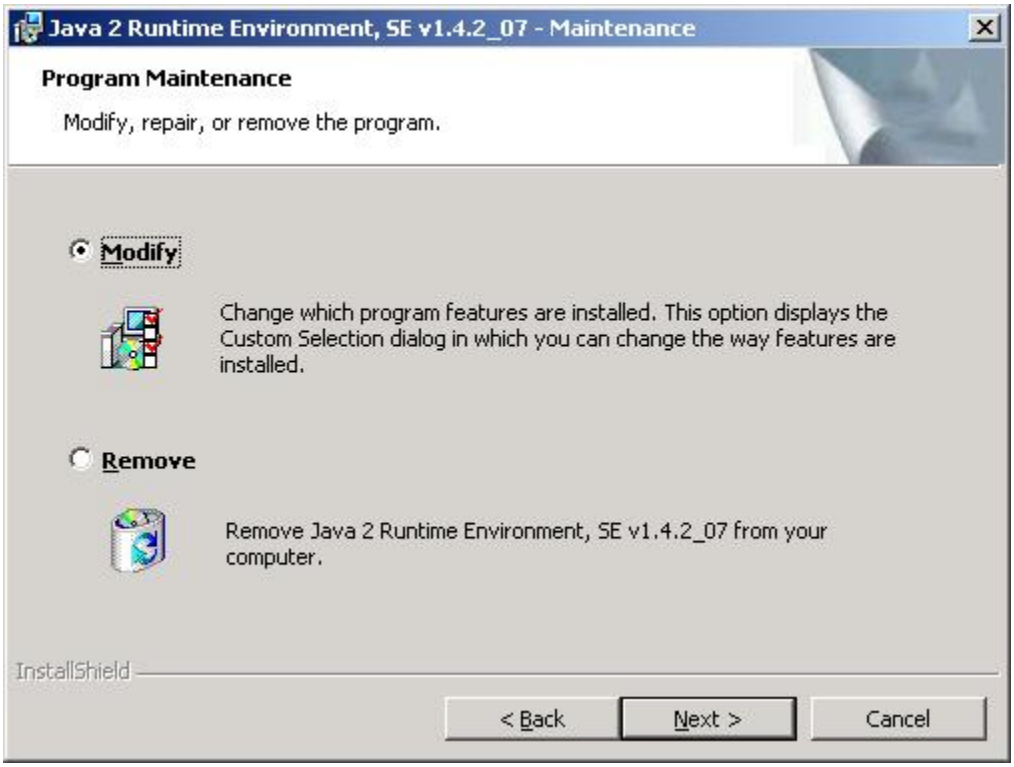
The following section walks you through the steps to modify the existing installation of JRE on the Windows Platform. These steps install the *Support for Additional Languages* as the Client Configuration Tool uses shift-JIS character encoding on the Windows Platform.

Step 1
Double click the `j2re-1_4_2_07-windows-i586-p.exe` installable from the following directory: `<CD>\tools`

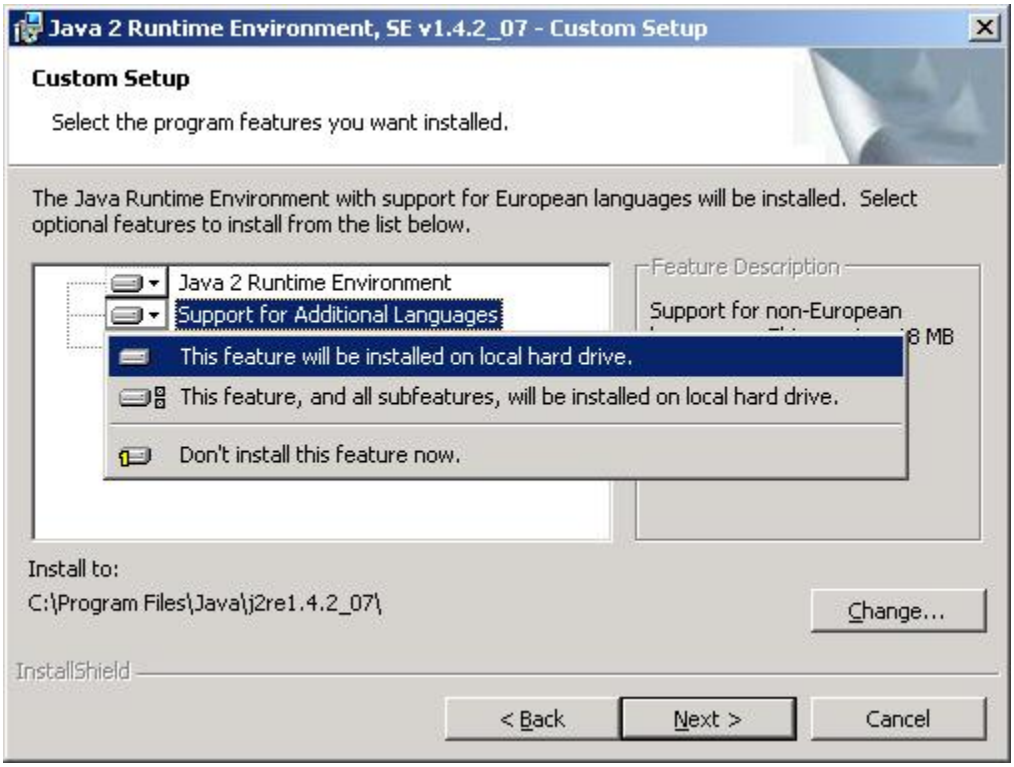
Step 2
Click *Next* > on the Maintenance screen as below:

Java 2 Runtime Environment, SE v1.4.2_07 - Maintenance Welcome
Welcome to the InstallShield Wizard for Java 2 Runtime Environment, SE v1.4.2_07
The InstallShield(R) Wizard will allow you to modify, repair, or remove Java 2 Runtime Environment, SE v1.4.2_07. To continue, click Next.
< Back
Next >
Cancel

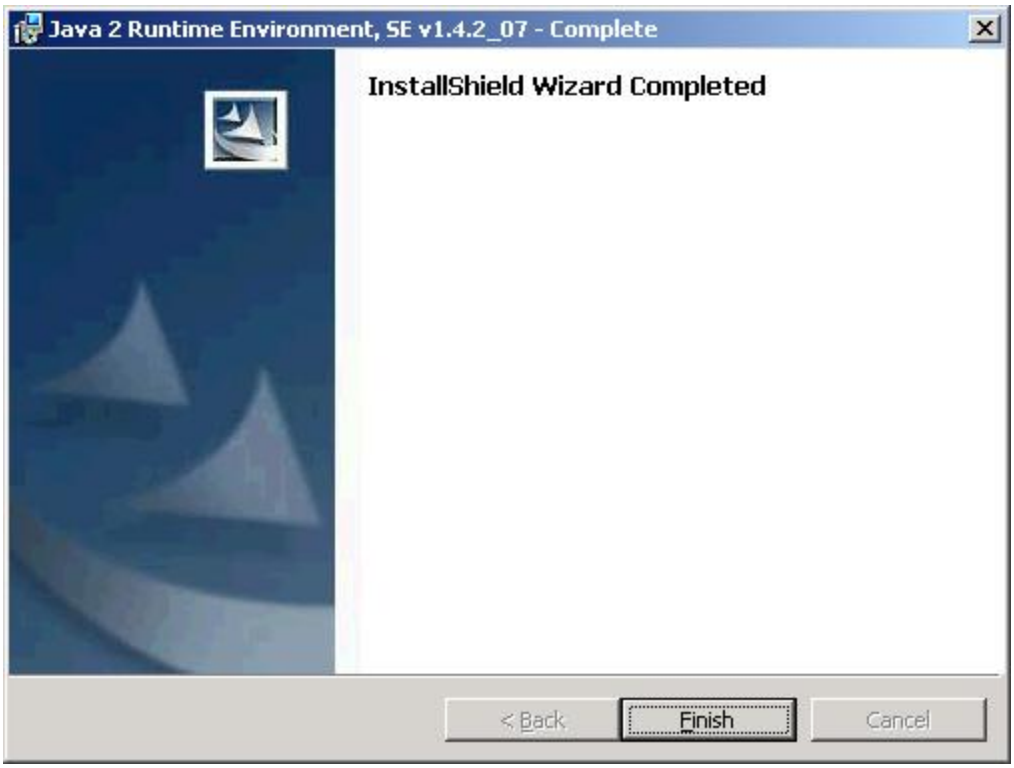
Step 3
Select *Modify* and click *Next* >


Java 2 Runtime Environment, SE v1.4.2_07 - Maintenance
Program Maintenance
Modify, repair, or remove the program.
Modify
Change which program features are installed. This option displays the Custom Selection dialog in which you can change the way features are installed.
Remove
Remove Java 2 Runtime Environment, SE v1.4.2_07 from your computer.
InstallShield
< Back
Next >
Cancel

Step 4
In addition to the *Java 2 Runtime Environment*, also select the *Support for Additional Languages* as shown below and click *Next >*


Java 2 Runtime Environment, SE v1.4.2_07 - Custom Setup
Custom Setup
Select the program features you want installed.
The Java Runtime Environment with support for European languages will be installed. Select optional features to install from the list below.
Java 2 Runtime Environment
Support for Additional Languages
Feature Description
Support for non-European
8 MB
This feature will be installed on local hard drive.
This feature, and all subfeatures, will be installed on local hard drive.
Don't install this feature now.
Install to:
C:\Program Files\Java\j2re1.4.2_07\
Change...
InstallShield
< Back
Next >
Cancel

Step 5
Click *Finish* on the following screen:



Appendix E: Starting the ftp daemon

The following section walks you through the steps to start the wu-ftp daemon on the FT-Linux server

Step 1
On the FT-Linux server, with the login as root, open the wu-ftpd file in the /etc/xinetd.d folder using the command:

```
vi /etc/xinetd.d/wu-ftpd
```

Step 2
Change the default setting from disable = yes to disable = **no** as below:

```
# default: on
# description: The wu-ftpd FTP server serves FTP connections. It
# uses \ normal, unencrypted usernames and passwords for
# authentication.
service ftp
{
   socket_type       = stream
   wait              = no
   user              = root
   server                  = /usr/sbin/in.ftpd
   server_args       = -l -a
   log_on_success          += DURATION USERID
   log_on_failure          += USERID
   nice              = 10
   disable                 = no
}
```

Step 3
Save the file and quit the “vi” editor.

Step 4
Run the following commands to restart the “xinetd” service

```
service xinetd stop

service xinetd start
```

The wu-ftpd daemon will now be started on the server.